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ABSTRACT

This annual compilation presents four papers which focus on significant developments in higher education in nineteenth-century Europe and the United States. An introduction to the volume by Roger L. Geiger notes commonalities across the four papers and major trends in historical research on institutions of higher education. The first paper, by Nancy Beadie, is "From Academy to University in New York State: The Genesee Institutions and the Importance of Capital to the Success of an Idea, 1848-1871." This article's focus on the relationship between Genesee Wesleyan Seminary and Genesee College engages larger issues of the period, including curriculum change to include scientific and modern courses as well as effects of religious affiliation. The next article, "'We Desired Our Future Rulers To Be Educated Men': South Carolina College, the Defense of Slavery, and the Development of Secessionist Politics" by Michael Sugrue, focuses on the role of college president Thomas Cooper and political changes before and during the Civil War. The third article is by Thomas Kevin B. Cherry and is titled "Bringing Science to the South: The School for the Application of Science to the Arts at the University of North Carolina." This article questions the conventional view of a literary, nonscientific emphasis in Southern higher education, noting the efforts of president David Swain to create a program in applied science. The final article, "Patterns of Access to Modern European Universities: Rates of Enrollment" (Fritz Ringer), looks at trends during this period in Europe. Brief summaries of 21 recent dissertations in the history of higher education are also provided. (Individual papers contain reference notes.) (DB)

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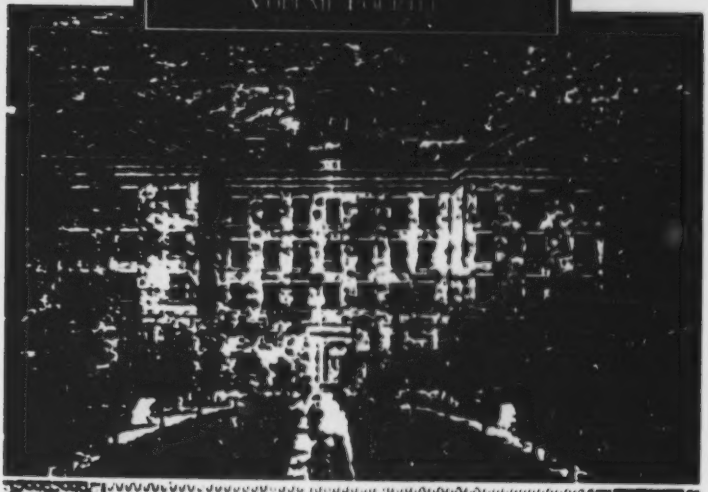

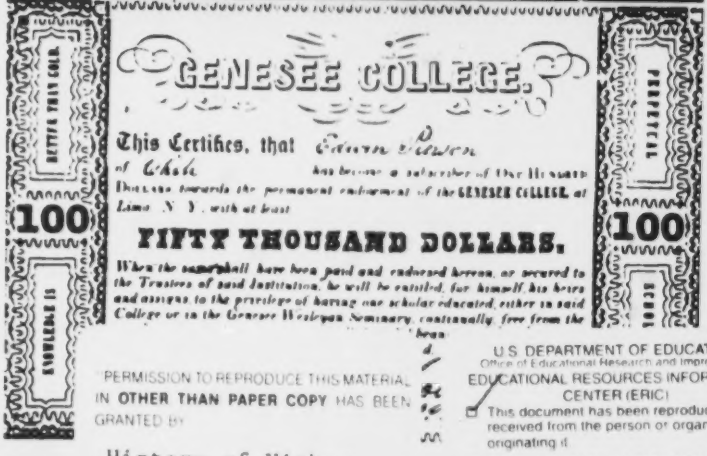
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Volume Fourteen

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History of Higher Education Annual 1994
Perspectives on the Nineteenth Century

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Perspectives on the Nineteenth Century: Introduction to Volume Fourteen

ROGER L. GEIGER

This volume of the *History of Higher Education Annual* focuses on significant developments in nineteenth-century Europe and the United States. The first three studies illuminate quite different facets of individual antebellum colleges, while Fritz Ringer's wide-ranging analysis compares rates of attendance for European higher education largely in the last half of the nineteenth and the first decades of the twentieth centuries. This study is particularly welcome as an update of the author's seminal work, *Education and Society in Modern Europe*.[1] It also goes further, as I shall discuss below, in extending the conceptual framework for assessing the significance of enrollment patterns.

The articles on Genesee College, South Carolina College, and the University of North Carolina also recall earlier historical writings. During the 1970s, the interpretation of the antebellum, or 'old-time,' college was the liveliest topic in the history of American higher education. The traditional, rather negative, view depicted the colleges as small, impecunious, and out-of-touch institutions, wedded to the classics and their respective denominational sponsors.[2] This interpretation was challenged by a group of historians who were then called 'revisionists,' although the term is by now passe.[3] Basically, they approached the colleges as social historians, emphasizing the ties that bound institutions to the communities served; and they documented a record of positive, if often modest, accomplishment for the colleges, rather than the hypothetical failures that loomed so large in traditional accounts. Since the 1970s, though, little has been added to this corpus of scholarship. The studies in this volume, while scarcely reopening this exchange, nevertheless provide sufficient fresh material to encourage further reconsideration of the antebellum college.

Although each article is centered on a single institution, all engage larger issues. Genesee College operated in several educational markets, even challenging Cornell for New York State's land grant under the Morrill Act. The University of North Carolina looked to the experience of Northern colleges when it sought to enhance its economic relevance by teaching applied science. And, South Carolina College fulfilled its designated role, not only by training a political elite for the state and the Lower South, but by propounding an ideology by which that elite justified their unique culture. Clearly, to group these institutions under a single rubric, such as 'old-time colleges,' is to ignore their distinctive and dynamic features in favor of the dull and uninteresting ones. Clearly as well, they sought to be 'relevant' to the communities they served. For Genesee and North Carolina, this meant enlarging the curriculum in the 1850s; but earlier, South Carolina College too had added courses that spoke to the political issues of the day. Most important, these three colleges (and undoubtedly a multitude of others)

have complex histories that include developments which are not reflected in current historiography.

The Genesee complex of institutions that Nancy Beadie examines is representative of a definite type in American higher education—what Colin Burke described as multi-level, multi-purpose institutions.[4] Oberlin may be the best-known exemplar, but no previous study has revealed, as Beadie has, the nature and logic of how the parts of such entities related to one another. The key here was the original Genesee Wesyleyan Seminary, which taught a wide variety of subjects to regular and irregular students. The original plan of the trustees was to elevate this model to higher education, to form what Beadie calls a vernacular conception of an American "university." Forced to settle for a college, they nevertheless created scientific and modern courses as originally foreseen. They could only move into these new markets, however, due to the existence of economies of scale and scope. Demand for bachelor-of-sciences and perhaps bachelor-of-arts degrees were alone insufficient to support a college, but subsidies from the Seminary made the enterprise viable.

Genesee College thus shared little with the stereotype of the antebellum college. It was not conservative in curricular matters, but rather embraced scientific and applied subjects as well as granting equality of study to women. Its relationship with its Methodist sponsors was not doctrinal but, as Beadie explains, principally political and economic: as the only Methodist college in New York, Genesee derived students and capital from the region's congregations as well as vital political support in the legislature. But, the niche that the college filled so ably in the 1850s proved to be an unstable one. The growth of public secondary education undercut the mission of the academy, eroding its capacity to subsidize the college. At the same time, it became apparent that the resources needed to maintain a specialized science faculty, as the contrast with Cornell underscores, were beyond Genesee's reach. The final blow occurred when its Methodist backers switched their political and economic support to Syracuse, where they felt the limitations of Genesee could be surmounted. Genesee College thus became one of the casualties in the modernization of American higher education, but hardly a failure. It adapted resourcefully to the educational environment prior to the Civil War, but then found itself undercut by circumstances emerging afterward.

South Carolina College was an exceptional institution. While in form it may have largely resembled other antebellum colleges, it was the first to receive large and continuous annual state appropriations. Only the University of Virginia was able to duplicate this feat before the Civil War.[5] For both institutions, the inspiration was the same: they largely represented the interests and outlook of the landed upper class of their respective states. The article by Michael Sugrue explicates the key ingredients of this intriguing and fateful relationship for South Carolina, where the identification of interests was closest. Here the College inspired and then reinforced the key doctrines undergirding Southern secession, while also tolerating (and thus implicitly nurturing) forms of student behavior that helped transform these ideas into the reality of the Civil

War. Most interesting, Sugrue has identified and documented the keystone of the arch connecting the College and South Carolina politics: namely, the extraordinary teachings of college president Thomas Cooper (1820-1834).

Cooper was by all accounts a learned man—indeed, a veritable polymath. He was also at bottom a relic of the Radical Enlightenment, ever ready for battles in politics, religion, or other intellectual arenas.[6] A protégé of the great chemist, Joseph Priestly, with whom he also shared Deism and anticlericalism, he was also accomplished in law and medicine. An ardent Jeffersonian (and greatly admired by Jefferson himself), he had been imprisoned by Federalists under the Alien and Sedition Act. At South Carolina College he taught belles-lettres and chemistry. He refused, however, to offer metaphysics, which he regarded as worse than useless, transforming that course instead into political economy. His record as an academic has probably never been equaled: his two positions at Dickinson College and South Carolina College both ended, largely through his doing, in the forced resignations of the entire faculty.

It has been generally recognized that Cooper's espousal of free trade and state's rights—and the consequent notion that states could nullify federal laws—were warmly appreciated among those who governed the state and the College. Accordingly, they tolerated his anticlerical idiosyncrasies. Michael Sugrue's study brings this picture into much sharper focus and, above all, demonstrates how Cooper's political ideas were inculcated and perpetuated among the students of the College and future leaders of the South. Cooper surrounded himself with faculty who considered these extreme views axiomatic. These notions were explicitly taught in the classroom and directly echoed in the debates of the College's literary societies. Finally, by following the careers of College alumni to the Civil War, Sugrue has shown how these doctrines were spread among the political leadership of the Deep South.

As an antebellum college, South Carolina can scarcely be charged with irrelevance. It was pervaded by the political culture of the state's governing class; the College contributed significantly to that culture and transmitted it faithfully to the next generation. When its influence was jeopardized at the end of the Cooper regime, the trustees acted quickly to restore the College to its accustomed role of promoting solidarity among the governing class. Besides antagonizing the churches, Cooper probably alienated former supporters by continuing to preach intractable nullification even after that divisive quarrel had been resolved (see the remarkable testimony of Featherstonaugh). At that juncture—1833-1834—students deserted the College and the trustees finally called for the resignation of the faculty. The situation was readily repaired, however.[8] One of their own kind, Robert Woodward Barnwell, accepted the presidency in 1835. Although a Harvard graduate, Barnwell was a lawyer, slaveholder, and former member of both the state legislature and Congress. His credentials as a nullifier were in good order too, but in local affairs he was a conciliator rather than a dogmatist. The appointment of a popular minister to a new professorship of the Evidences of Christianity mollified clerical hostility, but the atmosphere of the College remained preponderantly political. Robert Henry, who taught the catechism of state's

rights in his moral philosophy class, first declined an invitation to join the new faculty, but was coaxed back in 1842. No denominational colleges challenged the hegemony of South Carolina College until the 1850s, well after the Cooper crisis. Essentially, the role that Sugrue has depicted continued without interruption until the day, as noted, every student volunteered to serve in the Confederate Army.

The University of North Carolina also represented the interests of the state's upper class. Far less tied to the plantation economy, however, the aspirations of North Carolina leaders increasingly were directed toward the economic modernization of the state. Accordingly, they sought to have the university teach civil engineering and agricultural chemistry. Like virtually all their contemporaries, they found such a move more easily said than done. Remarkably, they looked for guidance to the North, where a few precedents had been established. Such behavior contrasts with the regional chauvinism displayed in South Carolina, as well as with the predominant historical image of insular Southern colleges, willfully isolating themselves to preserve the South's 'peculiar institution.'[9]

In the thesis from which this article is adapted, T. Kevin Cherry adds further evidence to question the conventional notion of a literary, nonscientific emphasis in Southern higher education.[10] For the first years after its founding in 1795, UNC harbored aspirations for a 'scientific school,' and at least offered students the choice of a science and modern languages track. In 1804, however, Greek as well as Latin became compulsory, and the university conformed to the pattern of other classical colleges. In the following years, offerings in science nevertheless expanded in much the same way that Stanley Guralnick found them growing at Northern colleges.[11] In addition, the University consistently enrolled 'irregular' students, most of whom seem to have come for science courses. When David Swain, the former governor (1832-35), assumed the presidency in 1835, the creation of a program in applied science became a persistent wish.

Swain presents an interesting contrast with his contemporary Barnwell, who became president of South Carolina College the same year.[12] Each young man, if anything, stepped down to head a college after a precocious political career; and each belonged to the rather different political elites governing their respective states. Barnwell, a plantation owner from Beaufort, sought to preserve the vested interests that dominated the state and the College. Swain, hailing from a more modest property-owning family, had to cut short his own studies at UNC after only a few months due to financial hardship. Instead, Swain read law with the state's Chief Justice, and then rose rapidly in legal/political circles to the state's highest office. His abiding concern while governor was the internal improvement of the state, especially the building of railroads. Thus, Swain and the UNC trustees took the steps leading to the School for the Application of Science to the Arts, including the extraordinary measure of having the two faculty members prepare themselves in the North.

The most attractive models that Charles Phillips and Benjamin Hedrick encountered in their travels were the inchoate scientific schools at Yale and Harvard. Although

themselves rather different, these schools both stood entirely outside the classical course offered in their respective colleges.[13] Phillips and Hedrick naturally envisioned a similar structure for UNC, but this approach presupposed a corps of exclusive science students—something that had emerged over time at only a few Northern schools. More realistically, the approach actually taken integrated the School for the Application of Science to the Arts with the rest of the college, allowing seniors to opt for these studies instead of the classical course. Remarkably, the vast majority did just that. The result, however, was not the graduation of cadres of engineers and agricultural scientists, but rather A.B.s who possessed a smattering of knowledge in these areas. Given its successful start, the school in all likelihood would have developed a more extensive professional course for applied scientists had the war not intervened.

The juxtaposition of these studies of antebellum colleges with Fritz Ringer's analysis of access to modern European universities naturally raises the question of how the American pattern compares with the development of higher education across the Atlantic. First, however, we should recognize how Ringer's sifting of enrollment data subtly advances conceptual understanding of the evolving social relations of higher education. In Germany and France, where strong ties existed between university credentials and careers in civil service, significant expansion of student numbers produced periodic 'overenrollment crises,' in which many graduates were believed unable to secure suitable positions. In England, on the other hand, the domination of liberal subjects in universities and the absence of professional training resulted in lower demand for university education. Pressures for greater inclusion in each country were resolved after 1870 through the "systematization" of higher (and secondary) education, which included acknowledged "social demarcations" among the different segments. It then took some time before the newer types of institutions achieved equality of accreditation, and even then prestige differentials probably remained far more stubborn. Early in the twentieth century, an important structural change nevertheless seems to have occurred. Through a process of interactive accommodation, greater numbers of university graduates found employment in the private sector of the economy. These conceptual relationships are tantalizing in the light they shed on critical aspects of educational modernization, but they also, as Ringer points out, require additional explication for full understanding. One might still speculate about how the United States would fit into the picture that thus seems to be hazily emerging.

It has been estimated that age-specific enrollment rates in the United States roughly doubled from 1800 to 1860. Compared with the figures given in Ringer's Tables 1-4, the rate in 1860 would be slightly more than 0.5 percent of five-year cohorts.[14] This level would be above that for France and Germany, but possibly less than enrollment rates in some of the smaller North European countries (Table 4). That the United States' enrollment rates would be comparable to Europe's in 1860 is somewhat surprising: less rigorous preparation was required, costs were generally low, and the population was served by a large number of colleges. In some ways the United States resembled

England, where higher education suited graduates for careers in education or the ministry but few other specific vocations.[15]

This fact should have precluded the occurrence of overenrollment crises, yet something like the same cyclical patterns that Ringer points to can be found in the United States. The robust expansion of the 1830s was followed by stagnation in enrollment rates in the following decade. A second surge in enrollments began in the 1850s and carried, despite the turbulence caused by the Civil War, into the early 1870s. Collegiate enrollment rates then retreated until the late 1880s, although student numbers expanded considerably in medical and normal schools. These dynamics have generally been linked to the aftereffects of the financial panics of 1837 and 1873, rather than to overenrollment. Nevertheless, limitations in the enrollment base of the colleges seem evident. Although the circumstances are little understood, in both cases colleges faced implicit competition from other types of institutions, and in both cases internal adaptation apparently played a role in resolving the 'crisis.' By 1890, however, the United State not only had outdistanced Europe in enrollment rates, but was then only on the cusp of far more explosive growth.

Enrollment rates in the United States were three or four times those in Europe in 1910, and five or more times those rates in 1930.[16] Important compositional factors were partly responsible. Women in 1890 were already more than a third of collegiate students in the United States, but they remained an almost negligible portion of students in European universities until after World War I (Table 5). Professional courses were incorporated into university studies in the United States for engineering, business, and teacher education. The functional equivalents, of course, existed in Europe, but largely in nonuniversity settings (where they had been earlier in the U.S. as well). Negatively, European patterns of academic secondary education long acted as the spigot restraining the numbers qualifying for university study, while the American high school eventually assumed a far different role. In Ringer's terms, however, these factors are manifestations of larger processes.

He notes that "systemization" of roles of educational institutions was already taking place in Europe by 1870, and that inclusionary pressures were thereby diverted to nonuniversity institutions, which only later attained official equivalence. In the United States, though, what I have called "standardization" began in earnest only a generation later.[17] By that time, a considerable variety of institutes, normal schools, and various sorts of colleges were contesting for educational roles and institutional space. Emerging over all was the American university—an imperialistic conglomerate that could assimilate the tasks of any or all of those other institutions. The ensuing efforts to impose order on this chaos—by foundations, accrediting bodies, institutional associations, and institutions themselves—produced a somewhat fluid hierarchy rather than a rigid institutional order. The same elements that characterize Ringer's high industrial era in Europe are discernible in somewhat different guise in the United States: "sharp competition for educational places" (selective admissions); "conservative determination to limit ... access" (the glorification of 'liberal education' and the disparagement

of vocationalism); and the "popular pursuit of educational opportunities" (urban universities, junior colleges, teachers colleges). Some credentials may have been worth more than others in the variegated American system, but the lower reaches of this system were essentially open to anyone with minimal qualifications.

The nature of competition in this high industrial phase, whether in the formally structured European systems or in the informally hierarchical American one, raises the issue of social equity—who succeeds in claiming the most esteemed and valuable places. For this, however, we shall have to wait for the next volume of the *Annual*, for which Fritz Ringer has promised a sequel to the present article examining the social origins of students.

NOTES

[1] Fritz K. Ringer, *Education and Society in Modern Europe* (Bloomington, Ind.: Indiana University Press, 1979).

[2] Avatars of the traditional view are, Donald G. Tewksbury, *The Founding of American Colleges and Universities Before the Civil War* (New York: Arno Press, 1969 [1932]); and Richard Hofstadter, *Academic Freedom in the Age of the College* (New Brunswick: Transaction Press, 1995 [1961, 1955]). These issues are discussed in my "Introduction" to the Transaction edition.

[3] Aspects of Tewksbury's argument are demolished by Colin B. Burke, *American Collegiate Populations: A Test of the Traditional View* (New York: New York University Press, 1982 [based on a 1973 Ph.D. dissertation]); contemporary charges of unsuccess and unpopularity are contested by David B. Potts, *Baptist Colleges and the Development of American Society, 1821-1861* (New York: Garland Press, 1988 [1967]). For a balanced discussion of the new scholarship, see James McLachlan, "The American College in the Nineteenth Century: Toward a Reappraisal," *Teachers College Record* 80 (Dec. 1978): 287-306.

[4] Burke, *Collegiate Populations*, 38.

[5] The University of Virginia and South Carolina College closely resembled one another in state support, upper class patronage, and the importance of student socialization through the extracurriculum. Patterns of attendance differed markedly, however, most Virginia students attended for only the freshman or sophomore years, but South Carolina under Cooper almost eliminated the freshman year, so that most of its students were juniors and seniors. It thus seems likely that South Carolina College had the greater intellectual impact on its students, as Sugrue suggests.

[6] The characterization of Thomas Cooper in most histories of higher education is quite one-sided. He is depicted as an enlightened victim of clerical prejudice, denied a position at Jefferson's University of Virginia in 1819 (it did not open until 1824) and persecuted by churchmen at South Carolina: Hofstadter, *Academic Freedom*, 264-69; John S. Brubacher and Willis Rudy, *Higher Education in Transition* (New York: Harper Brothers, 1958), 300-01. In addition to the corrective provided here by Michael Sugrue, Cooper's complex career at South

Carolina College can be followed in: Daniel Walker Hollis, *South Carolina College* (Columbia, S.C.: University of South Carolina Press, 1951), 74-118.

[7] Charles Coleman Sellars, *Dickinson College: A History* (Middletown, Conn.: Wesleyan University Press, 1973), 150-58; Hollis, *South Carolina College*, 116.

[8] Hollis, *South Carolina College*, chapter 7.

[9] In 1853, even as UNC was planning to teach applied science, President James Thornwell of South Carolina College authored a stirring defense of the classical, nonutilitarian curriculum: *ibid.*, 173-74.

[10]Thomas Kevin Cherry, "Science at the University of North Carolina, 1795-1853" (Master's Thesis, University of North Carolina, 1993).

[11]Stanley M. Guralnick, *Science and the Ante-Bellum College* (Philadelphia: American Philosophical Society, 1975); Cherry, "Science at UNC," 1-11.

[12]Hollis, *South Carolina College*, 126-28; Kemp B. Battle, *History of the University of North Carolina*, vol. 1 (1789-1868) (Raleigh, N.C.: author, 1907), 423-26 and passim.

[13]The Sheffield Scientific School at Yale soon evolved the kind of undergraduate science course that North Carolina might have emulated, while Harvard's Lawrence Scientific School was largely a place for advanced individual study.

[14]Burke, *Collegiate Populations*, 54-55. For these crude comparisons, no pretense is made to estimate new enrollment ratios. Rather, Burke's figures are taken for 1800-1860, and those published by the Bureau of Education are used for subsequent decades.

[15]The famous Yale Report of 1828 justified the collegiate curriculum as pre-professional education, which contrasted sharply with universities on the Continent. American college students were also likely to be younger than European university students.

[16]For 1910: 4.1 percent of five-year cohorts vs. 0.9 in Germany and 1.36 in France; for 1930: 10.4 percent in the U.S. vs. 1.6/2.1 percent in France and Germany (Table 2).

[17]Roger L. Geiger, "The Historical Matrix of American Higher Education," *History of Higher Education Annual* 12 (1992): 7-28.

From Academy to University in New York State: The Genesee Institutions and the Importance of Capital to the Success of an Idea, 1848-1871

NANCY BEADIE

"I would found an institution where any person can find instruction in any study," Ezra Cornell declared in an early address to members and friends of Cornell University.[1] This statement of the idea behind "the first major university in America" has been disclaimed as undisciplined by many an academic, perhaps beginning with Cornell's own first president, Andrew White.[2] It was not, however, a new idea. The principle of offering instruction in any subject for which there was student demand had been standard practice for hundreds of academies in New York State alone for fifty years or more. What Mr. Cornell provided were not new ideas about which subjects to teach, but the means of success for teaching subjects at a scale and a level which, when previously tried on a market basis, failed to meet with student demand sufficient to pay for their support.

Scholars have customarily taken the antebellum college as the appropriate unit of comparison with the new university of the late nineteenth century. In doing so, however, they have abstracted the college from the institutional context in which it operated, and on which it depended for sustenance. As Colin Burke concluded from his exhaustive study of antebellum colleges and collegiate populations, virtually every college founded between 1800 and 1860 operated as part of a multi-level, multi-purpose educational complex. Typically including an academy, such a complex might also include a college, a primary department, a normal school, a theology department, a law school, and/or a medical school.[3]

The precise terms of the relationships between these educational enterprises have never been seriously examined. When mentioned in histories of higher education, academies are often referred to as preparatory schools. And yet it is clear that enrollments at academies consistently exceeded those at affiliated colleges in ratios ranging from 3 to 1 to 10 to 1; that income from such enterprises subsidized colleges; and that academies were eclectic institutions which experimented with instruction in a range of applied arts, sciences, and vocational subjects as well as in ancient and modern languages and literature.[4] How did the relationships between such institutions actually work, and what may have been the influence of those relationships on the multidisciplinary character of the emerging university?

This essay is a response to that question. More specifically, it is the story of the relationship between a particular academy and a particular college: Genesee Wesleyan Seminary and Genesee College, formerly of Lima, New York, about twenty-five miles southeast of Rochester. Genesee College figured directly in the contest for federal land-

grant funds that resulted in the founding of Cornell University in 1865. Moreover, the College won a substantial financial concession from Ezra Cornell and the State Legislature in recognition of its claim to a share of the land grant. But it is not only with respect to those events that the Genesee institutions have something to teach us about the emerging university.

Organized in 1830 and opened in 1832, Genesee Wesleyan Seminary became the largest of 152 New York Regents academies operating in 1845.[5] Building on the seminary's success and its existing coursework in classics, math, sciences, and philosophy, the trustees of the seminary in 1848 sought to obtain a college charter. As one of several special courses which the seminary trustees considered "spinning off" into separate but affiliated enterprises, the college was never expected to supersede the academy. Rather, as originally conceived, the new college would join the seminary as one of several schools in a larger institutional organization. The word the trustees used to describe this expanded organization was "university."

Although the Legislature refused to grant a charter under the title "university" in early 1849, the trustees continued to pursue their idea until 1871. Their efforts reveal the existence of nearby precedents for the Cornell University experiment. Historians of the American university have emphasized its debt to German ideas and models. Under that interpretation, the emergence of the university in the late nineteenth century is a study in the transfer of culture.[6] The Genesee case suggests, however, that a vernacular American notion of the university existed as well. A study of the Genesee case illuminates the nature of this precedent and the departure from precedent that Cornell represented.

THE RESULTS OF THE EXPERIMENT

The New York Law establishing Cornell University in 1865 included some interesting provisions. In addition to the $500,000 which Ezra Cornell promised in order to win the University's designation as New York's land-grant institution, the bill directed Mr. Cornell to pay $25,000 to the trustees of Genesee College to establish a professorship of agricultural chemistry there. At the same time, the bill provided a third institution, People's College, with a procedure by which it could retain the grant for itself, thereby pre-empting Cornell's claim.[7]

Inserted as amendments to the original bill, these two provisions were concessions to specific constituencies, and to past practice in the disbursement of education funds in New York.[8] Both institutions had plausible claims to benefit from the Morrill Act of 1862. Nor were they the only institutions in New York with reasonable claims to a share of federal land-grant college funds. Ezra Cornell acknowledged as much in his own initial plan for supporting land-grant education in New York. That plan provided that the proceeds of the sale of public lands be split between People's College and the New York State Agricultural College. It was to the latter institution that Mr. Cornell first intended to commit $300,000 of his own resources.[9]

All three of the institutions implicated by name in Cornell's quest for land-grant funding—People's College, New York Agricultural College, and Genesee College—were organized around 1850; and all experimented with instruction in applied arts and sciences. The three differed, however, in the degree of their specialization; in the roots and relative strengths of their constituencies; and in the extent of their success. It is out of this experimentation, with which Ezra Cornell himself had been involved for 15 years before founding Cornell, that "the first major university in America" emerged. A comparison of the three cases thus reveals just what problems the new university resolved.[10]

People's College was an institution dedicated to "a more general diffusion of the principles and sciences governing mechanics and arts."[11] The idea originated in 1850 with an association of craftsmen known as the Mechanics Mutual Protection. Building on a tradition of popular science and mechanics' institutes which had been flourishing since the 1820s, the college was to be a "school of technology" for the kind of mechanics who made up the membership of such organizations, and particularly for the 10,000 members of the Protection's nearly 250 chapters, predominantly located in New York State.[12]

The People's College experiment failed, however. Although it originated with a geographically broad network of mechanics, this constituency proved unable to raise funds adequate to retain control of the enterprise. By the 1860s, the Protection had lost its vitality, and initiative in the enterprise had passed to a land speculator who promised funds in exchange for locating the college in his town. A large building was eventually erected for People's College in Havana, New York, about 60 miles west of Ithaca, and the energetic first president, Amos Brown, temporarily managed to win New York State's share of federal land-grant funds for the institution in 1863. But these funds were lost to Cornell in 1865 for lack of clear title to the land and building ostensibly donated by the institution's benefactor. The college commenced operations in 1864, but closed in 1869. [13]

A second institution dedicated to applied arts and sciences, the New York Agricultural College, met a similar fate. Like People's College, the Agricultural College had roots in a geographically broad constituency of voluntary organizations: in this case New York's county and state agricultural societies.[14] Aided by a strong agricultural press, agricultural leaders had begun lobbying in 1849 for state support of an institution of agricultural science. A four-year struggle between rival localities and leaders finally led to a college charter in 1853, but the chief promoter of the college died within a year. Revived by the same energetic educator who subsequently won the land-grant designation for People's College, Amos Brown, the college received a $40,000 loan from the state and a matching amount of local funds to move to Ovid, New York and operate in conjunction with Ovid Academy. Brown lost the support of the trustees, however, and in 1860, after one year of operation, the college closed for lack of leadership.[15]

When Ezra Cornell proposed awarding land-grant funds to New York Agricultural College in 1864, then, he was not advocating additional support for an already viable enterprise. He was trying to resurrect an idea he had supported as a trustee of the dormant institution and as a member of the state agricultural society. As in the case of People's College, the effort had failed to found a New York institution for scientific education grounded in the educational traditions and constituencies of voluntary organizations. These constituencies proved neither cohesive enough nor permanent enough to sustain the enterprise through funding, founding, and early organization. Their only hope seemed to lie in a benefactor wealthy and dedicated enough to direct and follow through on the project.

Genesee College was a different case, however. Though dismissed by Cornell's founders and by historians as a "petty" and "drooping" denominational college, Genesee's claim to inclusion in the compromise bill establishing Cornell was based on its relative strength.[16] Like People's College and New York Agricultural College, Genesee College had experimented with teaching applied arts and sciences. Unlike People's College, New York Agricultural College or Cornell University, however, Genesee College had a history of successful operations. This success was due to the political, financial, and curricular support of the College's affiliated academy, Genesee Wesleyan Seminary.

THE ACADEMY

Academies have not been the subject of much close study. It is clear, however, that they were eclectic institutions. While almost always offering Latin and Greek, academies were not primarily college preparatory schools. In addition to classical studies and foundations of English grammar, arithmetic, history, and geography, academy faculty taught modern languages and belles lettres; moral, intellectual and political philosophy; and a range of sciences and applied arts, including, but not limited to, bookkeeping, surveying, mechanics, civil engineering, drafting, painting, map-making, hydraulics, electricity, mensuration, geometry, trigonometry, calculus, anatomy, physiology, chemistry, botany, zoology, geology, mineralogy, astronomy, and natural history.[17]

This breadth of instructional offerings is what made academies so effective in attracting students. As Joseph Kett described in detail in his history of adolescence, the experience of youth in early America had a decidedly fluid quality. The eclecticism of academies responded to this characteristic experience. Youth of both sexes and of all ages, from 6 or 7 to 25 or 30, could study at an academy for a term or two between stints of agricultural labor, common school teaching, or work as clerks in shops and counting houses. There they could continue their often interrupted grammar studies, acquire marketable skills for their next stint of paid work, or begin making their way into a profession.[18] It was by providing the means to pursue any or all of these options that academies became the popular institutions they were in the highly mobile society of antebellum America.

A particularly thriving example of this genre, the Genesee Wesleyan Seminary had by 1865 enjoyed over thirty years of large enrollments, effective financing, and broad support from throughout the state.[19] This vitality can be attributed to two factors which may at first seem contradictory: the institution's catholicity and its Methodist sponsorship. From the beginning, seminary leaders sought to make the institution as comprehensive as possible both in the studies it offered and in the students it enrolled. On the one hand, according to the 1834 catalog, students could receive "a thorough education in all the branches usually taught in our Colleges," or "in all the branches, both solid and ornamental, usually taught in female Seminaries." On the other hand, for those not pursuing a "regular course," arrangements were made "to give instruction in any of the branches taught in Colleges, Academies, Select and Common Schools, according to the wants of the students...." These branches included "Letters and Sciences," and "Agriculture and the Mechanic Arts," but did not include theological studies, "everything of a sectarian case being entirely excluded from the course of instruction."[20]

This statement of what, in university terms, would be known as "the elective principle" maximized the seminary's potential student markets, and thus the number of students it could enroll. Without Methodist sponsorship, however, the student market and financial base of the seminary would have been smaller than it was. Non-Methodist supporters from the local area raised essential funds, supplied materials and labor with which to build the seminary, and accounted for 20-30 percent of its students. But Methodist sponsorship expanded the student market and financial base of the seminary from the local to the regional and state levels. Methodist preachers, working as agents of the institution, traveled the circuits, stations and districts of the church's Genesee Conference, raising subscriptions, recruiting students, and circulating petitions. As a result, in 1834, its second year of operation, the seminary enrolled 376 students from 119 towns throughout central and western New York as well as from areas of eastern New York, Pennsylvania and Massachusetts. The financial base of the seminary was even broader. Subscribers to the seminary from 1830 to 1837 numbered 1264, came from 178 different towns, and represented a regional and interstate distribution.[21]

Geographically broad support in turn gave the seminary political leverage. When the trustees made a contested request for a revised charter in 1834, the State Assembly received citizen petitions in favor of the change from twelve different New York State counties. Similar shows of support accompanied subsequent requests for special appropriations, including a successful application for over $12,000 to pay off a previous bond and mortgage.[22]

The same factors which made the seminary strong proved important to the college as well. As will be discussed in more detail below, the seminary's market appeal subsidized the college. Meanwhile, the Methodists helped win a charter for Genesee College in 1849, solicited special appropriations for the college in 1854 and 1856, and pressed the college's application for land-grant funds in 1865.[23] When the college's request for land-grant funds reached the legislature in 1865, it was supported by citizen

petitions from virtually every senate and assembly district in the State. By contrast, no citizen petitions were received to support Cornell's bid for the land grant.[24]

This political dimension of denominationalism is important to recognize. In New York State during the antebellum period, the distribution of charters and funds, and of special state privileges and appropriations, depended largely on the political constituency institutions could mobilize. Incorporation as a Regents academy or college, for example, required clear title to land and buildings for the institution, normally supplied by local town supporters in the form of subscriptions, in-kind labor, and materials. A college charter required in addition a minimum endowment ($50,000 in 1850), which in the antebellum period was typically raised by subscriptions from hundreds of different individuals, not through the largesse of a single benefactor. Academies with Regents status were eligible for annual state funds which were distributed on a per pupil basis, thus again rewarding breadth of support.[25] Finally, beyond the provisions of these general incorporation and appropriation statutes, the state awarded special funds, loans, and privileges to individual institutions by vote of the legislature. Again, a broad-based constituency helped in securing sufficient votes. As it happened, denominations were the voluntary organizations most able to mobilize such constituencies in the antebellum era.

What Ezra Cornell and the Morrill Act did in 1865, however, was to make such support irrelevant. With two major grants of capital, each many times the total which colleges typically raised from a thousand or more different people, Cornell University did not need a coalition of local residents to secure its land and buildings.[26] Nor did it need regional funding networks to build endowment, secure loans, or provide political capital in bids for state funds and privileges. What's more, broad support was not even necessary to ensure Cornell a supply of students. Extended courses in civil engineering and agricultural science could be offered whether or not enrollment was sufficient to pay for them, even in the absence of subscription lists, a constituency, or an academy strong enough to subsidize the operations. In this respect the founding of Cornell University represented a departure from precedent. In other respects, however, Cornell represented an idea born of past practice.

THE UNIVERSITY IDEA

As first conceived by the seminary trustees who organized Genesee College, the relationship between the two institutions was not hierarchical. Rather, it was of two divisions within a larger university. The college actually originated as part of a plan to endow the seminary. In October 1848, seminary agents began raising funds to secure a college charter "for the Seminary" under the title "Genesee University."[27] As recounted later by the trustee who presented the charter in Albany, the trustees had intended "to keep up the distinctive character of the Seminary...as one of the Schools of the University." They found, however, that this "could not be done under a college charter." The chairman of the legislative committee on colleges and academies "positively refused to report a Bill with the name 'university.'" The word, in the view of the chairman, "imported several colleges or schools in one."[28]

Failing state legislative approval of the title "university" in 1849 and lacking the capital that made the Cornell achievement possible some twenty years later, the trustees of the Genesee institutions nonetheless pursued their idea as best they could. Instead of a "university" consisting of an enlarged Seminary with the power to grant college degrees, the trustees settled for a separately chartered college.[29] When the college opened in 1851, the catalogue included a description of the "general course of study...in the several affiliated institutions at Lima.[30] This multi-school plan, though never fully realized by the Genesee institutions at Lima, continued to shape organizational and instructional experiments at the institutions through the 1850s and 60s.

The Genesee plan of 1851 anticipated many of the features of the Cornell University idea as depicted in the Plan of Organization adopted by the Cornell Board in 1866. Subject areas in the Genesee plan were organized into four divisions, while the Cornell Plan would consist of two divisions. Nonetheless, the content of those divisions was much the same. Both plans highlighted applied sciences and professional studies by grouping them in one division—at Cornell under the title of "Special Arts and Sciences," and at Genesee under the title of "Professional Education." With the exception of Mining, advertised only in the Cornell Plan, and Theology, advertised only in the Genesee Plan, the lists of such studies were similar, including Agriculture, Mechanical Arts, Commerce, Medicine, and Law.[31]

Differences between the two plans involved the placement of areas of study within categories and the terms used to describe those areas of study. Along with other "special arts and sciences," mentioned above, the Cornell Plan listed Education. At the Genesee institutions, however, that subject was represented by the "Teachers' Department" of the seminary. "Civil Engineering" was also listed as a distinct area of study under special arts and sciences at Cornell, while at Genesee the subject was offered at the seminary as part of "Mathematics and Experimental Sciences" along with surveying.[32] More distinctively, White included history, political science and jurisprudence under special arts and sciences, thereby invoking a notion of professional civil service. These subjects were not absent from the Genesee plan, however. In accordance with the Anglo-Scottish model of civic education, Genesee included "political economy," and "the law of nature and nations" under its division of "moral education." History was grouped together with geography and the sciences under a division called "physical education."[33]

Beyond a common listing of subject areas, the two plans shared common course options. Both institutions made provisions for granting degrees to students who pursued courses emphasizing modern languages, sciences, and humanities over classical studies. As first laid out in 1850 and elaborated in 1851-2, Genesee College organized all the subjects of its general plan into one "college course," with subjects listed under "professional education" offered in addition "by lectures."[14] Also from the start, however, Genesee allowed students to substitute modern literature and science for classical portions of the college course. The college formalized this set of choices in a "scientific course" in 1854, and in an "optional course" in 1857, both of which led

to a Bachelor of Science degree.[35] Similarly, the second of Cornell's two curricular divisions, entitled "Science, Literature and Arts," offered a choice of five general courses of study leading to bachelors' degrees. Two of these were variations on the classical course which substituted modern languages for the classics. The other three were a standard classical course, a scientific course, and an "optional course," the latter two earning Bachelor of Science degrees.[36] Overall, then, with respect to four main features of the Cornell idea—elevating applied arts and sciences to collegiate status, providing instruction in vocational and professional studies, offering courses in liberal studies with less emphasis on the classics, and allowing opportunities for student choice—the Cornell Plan of 1866 was more elaborate, but not much different in its components from the Genesee Plan of 1851. In addition, although the trustees never advertised the fact, Genesee from the start accepted and awarded degrees to women in all college courses—a fifth feature of the Cornell idea which, even though advocated by White, was not accomplished at Cornell until its fourth year of operation, in 1872.[37]

Born of the demands of institution-building in the antebellum era, these features of the university idea originated as attempts to tap larger student markets. In response to popular interest in science, as demonstrated through lycea and lecture series, academies and colleges experimented with teaching sciences. Similarly, in response to the transient experience of youth, institutions experimented with establishing commercial schools, courses in agricultural chemistry, and professional studies in law, medicine, and education. In response also to high enrollment at the most ambitious female seminaries, academies and colleges admitted women to their higher level courses. And, partly to appeal to a broader segment of the population, including women, institutions developed courses that emphasized modern languages, belles lettres, and the sciences over classics.[38]

Academies, whose characteristic eclecticism was itself a response to student demand, led the way in such experiments. Colleges then sought to appropriate the key features of their success. As a result of this experimental process, certain features came to be associated together as a set of educational improvements that might be captured by the larger idea of a university. Lacking the rigor and sense of research and scholarship that the German model would lend to universities in the US in the 1870s and 1880s, this market-based idea of the university nevertheless provided an important vernacular tradition on which even admirers of the German university, like Andrew White, could build.

White did have the German model in mind when it came to the meaning of the new university. In an often-cited 1862 letter that outlined his university ambitions, White identified an essential feature of the Cornell idea not apparent in the Genesee case: that the university should "afford an asylum to science" where "truth shall be sought for truth's sake."[39] As important as this notion was to White's leadership of the university, however, it did not significantly distinguish the Cornell Plan of Organization from plans that had preceded it. The real difference—as White recognized when he insisted that above all else the state's land grant remain undivided—was in the resources which the institutions had to realize their plans.

THE CAPITAL

In order to pursue their plan, the Genesee trustees needed capital. Given the general absence before 1865 of large amounts of capital from either government or industrial sources, the trustees employed what was at the time a more common way of raising funds for higher education: the sale of subscription scholarships.[40] Under the terms of this practice, subscribers pledged to pay specified amounts to the institution over time. In exchange they received certificates entitling them to free tuition. Specifically, in this case, non-local subscribers pledged amounts of $100, receiving in exchange a scholarship certificate such as that shown below.[41]

100 One Hundred Thousand Dollars 100

Four features of this subscription scholarship bear particular notice. First, the subscriptions were dedicated to endowment of the college—under the original (1848) plan, subscriptions were to be raised to endow the Seminary.[42] Second, scholarship certificates were transferable; they could be lent, rented or sold to third parties. Third, these scholarships were perpetual; certificates could be presented for free tuition over and over again indefinitely. Fourth, and most importantly for the results of subscription funding in this case, these scholarships could be redeemed at *either* the seminary or the college.[43]

As a result of these provisions, the seminary effectively subsidized capitalization of the college. By late 1850, before the college itself had even opened, 57 percent of the tuition due to the seminary on 349 students was covered by new scholarships.[44] This greater relative demand on the seminary did not change much once the college opened in 1851, as the seminary consistently enrolled from four and one half to eleven times the number of students enrolled by the college.[45] Meanwhile, as the seminary redeemed scholarships, the college collected payments on subscriptions. Altogether, by 1860, the college had collected about $129,000 in principal and interest on $177,500 in subscription pledges.[46]

Judged both by the trustees' stated fundraising goals and by the standards of previous such efforts, the college subscription drive had been highly successful.[47] More importantly, the drive resulted in acquisition of real capital assets. A substantial portion of the funds went toward construction of a new college building; a small portion went to pay debts on the Seminary (about $6000); and some was drained away in operating expenses. By 1859, however, about $45,000 was invested in income-producing loans, mortgages, and bank stock. Eventually funds would also be invested in government bonds.[48] The next question, then, is what use the trustees were able to make of their investments. How far did the college's capital enable the trustees to pursue their plan for a university?

THE RESULTS

Plans for the use of college capital were at first expansive. In accordance with the initial university idea, the trustees designated nine new professorships in 1852, including full positions in Law, Medicine and Biblical Literature.[49] At the same time, however, they appointed a committee to assess the financial condition of the two institutions. This assessment made clear that without some action, annual operating deficits would consume the subscription capital and undermine the trustees' ambitions. In response, they commissioned a new treasurer, Benjamin Shipman, who applied business principles to management of the Genesee institutions.[50]

Under Shipman's direction, the trustees adopted a more calculated strategy of maximizing income and consolidating costs.[51] Effecting such a strategy involved centralizing control over financial decision-making, which was achieved though a series of formal agreements between the two institutions. In the first of these, executed in 1852, the college gained title to one-half of the real estate and most of the personal

estate of the seminary in return for assuming the seminary's debts and liabilities. Building on provisions for shared property-holding framed in 1850, this agreement acknowledged the liability to the seminary of subscription scholarships, while enabling the college to establish itself and meet the conditions of a college charter without incurring any substantial new debts of its own.[52] It also established a precedent, however, for subordinating seminary finances to development of the college. Subsequent agreements strengthened this tendency by subjecting decision-making for both institutions to a joint executive committee dominated by the college treasurer.[53]

The consolidation of finances and trusteeship also had repercussions for instruction. The sciences became a special target for reorganization because of their traditional popularity. Study of natural philosophy and sciences such as chemistry, botany, physiology, geology, mineralogy, and astronomy had enrolled large numbers of seminary students since the seminary opened in 1832.[54] In 1839, George C. Whitlock, a particularly popular professor of mathematics and natural sciences, joined the faculty, and was still teaching there when the college opened in 1850. Whitlock gave an annual series of "experimental lectures" covering such topics as mechanics, heat and gases, electricity, hydrostatics, magnetism, acoustics, optics, and analytical chemistry. As was common at antebellum colleges and academies, the lectures were open to the public for a fee, in the style of lycea and scientific institutes.[55]

This tradition of popular science at the seminary induced trustees of the college to try augmenting the limited student market for classical studies by organizing a scientific course as well.[56] First offered as a specific program of study in 1854, though noted as an elective possibility in 1850, the scientific course included nothing different or additional in the way of science than had already been available for study through the seminary. Seminary science electives were simply repackaged as a multiyear curriculum culminating in a degree. The full course never achieved the success enjoyed by the seminary's popular science lectures, however. From a low of 18 in the first year, enrollment peaked in the college scientific course at 47 in 1862.[57] By contrast, enrollment in chemistry lectures alone at the seminary was 53 as early as 1834, and 70 in 1851.[58]

This experience with a scientific course at Genesee College accords with that at other colleges.[59] Popular interest in science was strong enough to sustain a successful series of annual public lectures, but it did not prove strong enough to sustain a multiyear course of study. As the Genesee trustees learned, scientific courses were like classical courses in that neither were sustainable by their own student demand. Both courses had to be subsidized by the larger, but more transient, student bodies who enrolled in academies on an elective basis.

To realize this subsidization, Genesee College trustees increasingly consolidated instruction for the two institutions. Already in 1851, seminary students were described as receiving chemistry instruction "in connection with the College class."[60] Under the new treasurer, in 1853, the trustees further directed that "students with a majority of studies in the College" were to be "recorded as college students."[61] For a few years one faculty member in the seminary taught the natural sciences, standard for students

enrolled in the "female course," while another, appointed to the college, taught the "experimental sciences" to college students and interested students from the seminary. In 1856, however, the trustees declared that all classes in natural philosophy would also recite to the college professor, and in 1858 the doubling up of science faculty ended entirely. As part of a series of measures to reduce costs, the trustees decreed: "hereafter classes in intellectual, moral philosophy or natural sciences will be formed in Genesee Wesleyan Seminary but given by the college professors."[62] The next year the policy was extended into a blanket prohibition against the seminary faculty teaching any classes which could be taught by college professors, and by 1860 faculty in the sciences, modern and ancient languages, and various branches of philosophy disappeared entirely from the seminary roster.[63]

While trustees were trying to reduce expenses by consolidating academic programs, they also sought to increase income by organizing two special fee-supported schools within the seminary: a commercial school and a music school. Launched in 1856, these two experiments with specialized education were to some extent congruent with the multi-school idea of a university projected by the trustees in 1851. Yet the results of these and other efforts fell far short of the 1851 plan. By 1860, in addition to those in music and commerce, the Lima institutions offered special programs of study in the "teachers' department," in the three college courses, and in a "graduating ladies' course" within the seminary.[64] They had not, however, developed distinct courses in any other areas of professional study projected in 1851 (i.e., medicine, law, theology, mechanics or agricultural science), or filled the faculty positions in those fields which had been designated in 1852. The resources of the institutions were still insufficient to employ faculty in specializations for which there was such limited student demand.

In 1860, however, the trustees made another attempt to establish such a faculty. They launched a subscription drive to endow college professorships in the sciences and professional education. With the goal of raising a total of $75,000 and endowing professorships at $15,000 each, the interest from the first $15,000 raised was to be dedicated to support "the Chair now known as the Chair of Chemistry and Natural History." To this end, subscriptions of $100 entitled subscribers not only to the privileges of a standard scholarship, but also, for the next five years, "to a ticket of admission to all Agricultural Lectures delivered in the Institution by said Professor of Chemistry and Natural History."[65]

It was this professorship which Ezra Cornell essentially funded with $25,000 in 1865. That sum was by far the largest single grant of funds either of the Genesee institutions had ever received and could have been regarded as the next step in Genesee College's attempt to develop a university on a vernacular model. Yet even for the Genesee trustees, $25,000 in capital no longer looked very large. No sooner had the final decision on the federal land grant been made by the legislature, than the college's trustees began laying out a new plan for the college.[66]

Rather than proceeding along their previous path of developing a university from academy roots, the trustees embarked on a plan for dissolving the relationship. With

the help of new funds from Methodist, municipal, and state sources, and with the added inducement of investments from urban capitalists, the college relocated to the city of Syracuse in 1870, where it became the nucleus of Syracuse University.[67] The college owed its existence to the success of the seminary in virtually every important respect—financial, political and curricular. Yet in the changing political economy of the 1850s and 60s, the college increasingly differentiated itself from the seminary, and took much of what it owed the seminary with it.

FROM ACADEMY TO UNIVERSITY

This brief history of the Genesee institutions illuminates the status of several features of the Cornell University idea in the fifteen years before Cornell University was founded. First, far from resisting such features as the elevation of applied arts and sciences to collegiate status, the development of alternative and elective courses of study, and the institution of professional studies, Genesee College actively sought to adopt those features. Second, in their experiments with developing a multi-course, multi-school institution, college trustees did not invoke foreign models or ideals, but drew on the successful experience of the college's affiliated academy, Genesee Wesleyan Seminary. Third, beyond supplying the college with examples of eclecticism, popular scientific study, and instruction in applied arts and sciences, the academy very directly supplied the means for such experiments. Not only did Genesee Wesleyan subsidize the college's capitalization through lost tuition, but it provided the college with students, faculty and curriculum through consolidation.

In the Genesee case, the academy's role in subsidizing the pursuit of a university idea was tangible and direct. But this historical connection between the academy and the emergence of the university has broader significance as well. At Genesee the elevation of certain studies to collegiate status involved the subordination of the academy to the college. At the same time, in New York State as a whole, the emergence of the university was associated with the relegation of academies to secondary status.

Before the 1850s, academies in New York were the main providers of "academical" education beyond the common school level. High schools, after a period of urban experiment at the beginning of the century, were all but absent from the New York school scene. One important aspect of this success of the academy during the antebellum period was that it did not limit itself to education of a college-preparatory character. Academies were as likely to include a primary school and to offer studies in navigation, surveying, and commercial law as they were to teach Latin. Yet they often provided the virtual equivalent of a college course as well, complete with a capstone set of lectures in moral philosophy given by the principal.[68]

In the 1850s, however, this morphology of schooling in New York began to change. In 1853, the legislature provided for formation of "academical departments" within the district school system. This meant that in addition to providing elementary education, districts could join forces to offer programs in "higher studies" traditionally associated with academies. At first, the law allowed for a union district to adopt a local academy

for the purpose. In 1864, however, the law required elimination of tuition charges for academical departments, and in 1867, it required that departments be fully tax supported.[69] Thus academies increasingly competed with "free" tax-supported district high schools for students, or became high schools themselves. By 1875, high schools dominated "academical" education in New York.[70]

Tax support for "high" schools applied specifically to "academical" education, though, not to elective or applied studies. At Genesee this change in the state regulatory environment had several consequences. In order to better compete with the tax-supported high schools in towns from which it traditionally drew its students, the seminary emphasized the extra and applied studies which it offered on a fee basis, such as commerce and music. It also reduced and eventually eliminated tuition charges for academic subjects.[71] As a consequence, however, the academy lost its capacity to subsidize the college, either directly, or through the redemption of subscription scholarships. These developments influenced the trustees' efforts to capture for the college as much as possible of the market for scientific, literary, and philosophical studies, and to find more permanent college funding.

It was in this context of a newly-defined, but more limited, secondary education within the public system—and of a weakened student market for academies as a result of competition from the public sector—that the "modern American university" emerged in New York State. In this context, the university, like many colleges, took over several of the most successful features of academies and elevated them to collegiate status. Andrew White specifically cited such a precedent when it came to the issue of admitting women to Cornell, arguing in 1869 that the experiment of coeducation had already succeeded not only in common schools, "but what is much more to the point, in the normal schools, high schools and academies of this state."[72] Other features of the Cornell University idea, such as instruction in applied arts and sciences and the opportunity to pursue courses of liberal studies which emphasized belles lettres over the classics, also had an established history in academies.

The greatest legacy of the academy to the university, however, was the elective principle. Developed as a means of survival in the market, the characteristic eclecticism of the academy made possible the subsidization of more specialized forms of study, whether they be classical, scientific, agricultural or mechanical. It was this eclecticism which subsidized the existence of most antebellum colleges, and it was upon this same eclectic tradition that new university leaders built.

At Cornell this relationship between elective and specialized education continued for at least the first twenty years. As Colin Burke has pointed out, Cornell enrolled one of the largest student bodies of any college in the country in its first year (1868), but only a fraction completed even the short programs of study.[73] Many members of the classes of the late 1860s and early 1870s left before completing even one year at the university. Based on an analysis of the careers of the members of Cornell's first class, Burke concluded that students "used the Cornell programs for very short stops in college."[74] Moreover, those students who did complete full courses of study in the first

two decades of the university's operation, did so primarily in the same courses of study as were offered by Genesee and other colleges in the period before 1860: the classical collegiate course, the general scientific course, and the courses which allowed substitution of modern languages and literatures for the classics. With the exception of engineering, which graduated more than a fifth of Cornell's total bachelors' students in some years of the 1870s, the division of special arts and sciences graduated only a few students a year until the late 1880s.[75]

It appears, then, that though Cornell's much higher level of capitalization allowed it to hire the faculty and provide the facilities necessary for specialization, the relationship of specialization to eclecticism remained much the same as at the academy/college complexes typical of the antebellum period. The total enrollment at Cornell greatly exceeded that of Genesee College *alone*, but it was much less than the *combined* enrollment of Genesee College and Genesee Wesleyan Seminary throughout the 1850s and 1860s.[76] Meanwhile, Cornell students exhibited the same transience and instructional preferences as Genesee students. In this sense, vernacular precedents for the modern American university can more readily be found in relations *between* academies and colleges than in colleges alone.

CONCLUSION

What can we learn from the case of the Genesee institutions about the emergence of the American university? We can start by concluding that Andrew White was right. In the correspondence surrounding the founding of Cornell, White railed against the impossibility of making a "great university" out of a "petty college."[77] As a standard of comparison White appears to have had the German university in mind,[78] a model nowhere in evidence in the Genesee case. Even without such a standard of comparison, however, trustees of Genesee College might have agreed with White by the 1860s. They too had learned the impossibility of building a university by customary means.

In their attempt to develop a university from academy roots, Genesee trustees tried several strategies. They used the popularity and property of the seminary to capitalize the college; they consolidated the faculty and curriculum of the two institutions; and they maximized their student markets by accepting women to the college and by establishing schools of music and commerce in the seminary. Their next strategy was to solicit new sources of capital, including a share of New York's land grant.

Genesee's application for a share of New York's federal land grant was reasonable on a number of grounds. First, on the basis of past practice, the Genesee trustees had reason to expect that federal funds would be distributed to existing institutions. Both the seminary and the college had previously received shares of federal deposit funds for education by this means.[79] Second, the size and relative success of the joint operations at Lima made their claim a relatively strong one. Third, the trustees had already highlighted the field of agricultural chemistry at the college in their 1860 drive to endow a professorship in Chemistry and Natural History. Fourth, and most important, the Genesee institutions had the popular political support to sustain their

claim in the legislature. It was this support, marshaled in the form of state-wide petitions and lobbying efforts, that won Genesee a major concession in the bill establishing Cornell University.

White and subsequent historians of Cornell disparaged this demonstration of denominational power on the part of Genesee's supporters, portraying it as petty, unjust, and even corrupt.[80] The real issue, however, was the grounds upon which public resources for higher education were to be distributed. To win his case for awarding the whole of the New York State land grant to the as yet nonexistent Cornell, White invoked the principle of non-sectarianism. And yet Methodist agents might well have countered White's arguments by invoking principles of democratic politics. What the Genesee institutions laid claim to on the basis of popular, organized political demand, Cornell and White laid claim to by virtue of individual wealth, power, and leadership. Though he pretended disbelief and incomprehension in defending himself against such charges, it was precisely this kind of issue which was at stake when Cornell was publicly criticized for establishing "an aristocratic university."[81]

What overcame the logic of politics in the end, was the logic of capital. Methodist leaders justifiably regarded their affiliated academies, colleges, and universities as testaments to the power of their organization. But so did other denominations. In a sense, the very success of such institutions was their downfall. By the 1860s, any decision to award state education funds to one institution was bound to alienate the powerful constituency of another. And yet, substantial grants of capital such as those provided by the Morrill Act were recognizably necessary to achieve the visions of higher education taking form by 1865; specialization simply could not survive without capital sufficient to operate on a large scale. As White understood, the decision to fund a secular institution was a necessary correlate of a commitment to keeping the land grant undivided.

Nonetheless, it should be recognized that the Genesee institutions had real and sizable constituencies to back them in their claim for public support, while Cornell did not. In this respect the decision to award the whole of the federal land grant to Cornell represented a fundamental shift in the grounds of legitimization for the distribution of public resources for higher education. In Bruce Kimball's terms, the architectonic of cultural authority changed.[82]

Since at least the 1820s, the distribution of public resources and privileges in New York had followed a political geography of diffusion. This was a politics at which the highly organized Methodists excelled, and which justified state support to denominational institutions on democratic grounds. Building on a system of circuit-riding preachers and local Methodist classes, Methodist clergy developed an organizational structure which effectively tied a geographically dispersed population to regional educational projects and to state funds and privileges.[83]

With the concentration of industrial wealth and influence accelerated by the Civil War, however, this structure of political power changed. Businessmen rivaled clergy

in the regional, state, and even national resources they could mobilize. Moreover, business itself gained cultural legitimacy. Whereas evangelical churches in upstate New York still censored members for competitive business practices in the 1840s, business leaders in the 1850s assumed increasing power within church governing bodies, and began managing church finances on business principles.[84]

This new exercise of business influence took several forms in higher education, from a new representation of industrial philanthropists on denominational boards of trustees, to application of business principles to institutional management, to the assertion of new sources of cultural authority in matters of educational organization and support.[85] It is this last move that White made when he invoked non-sectarianism to justify awarding the whole of New York's land grant to Cornell University. White would later frame the issue as a "war" between "science and theology." This formulation obscures the fact, however, that the issues at the time had almost nothing to do with *theology*, but rather with the cultural influence and political power of the ministry and evangelical denominations. In order to overcome this power, White had to assert a principle other than market and political demand as the basis for distributing public funds for higher education. It was in this context that science, rather than polity, became the cultural imperative of "the first major university in America."[86]

NOTES

[1] Laurence Veysey, *The Emergence of the American University* (University of Chicago Press, 1965), 63, 82. As a source for this famous quotation, Veysey cited an "Address" published in Cornell University, Register, 1869-70, 17. Following Andrew White's account in his *Autobiography* (N.Y.: The Century Co., 1904), I, 300, Veysey and others also have suggested that the statement originated in earlier conversations between Cornell and White.

[2] Veysey, *University*, 81-88; Veysey's nuanced account of the differences between White's and Cornell's ideas suggests that White was skeptical about the worth of some of the practical and scientific studies Cornell favored. See also, Carl L. Becker, *Cornell University: Founders and the Founding* (Ithaca, N.Y.: Cornell University Press, 1944), 43-89.

[3] Colin Burke, *American Collegiate Populations: A Test of the Traditional View* (New York University Press, 1982), 38.

[4] *Ibid.* Also, on enrollment comparisons between academies and affiliated colleges, see W. Bruce Leslie, *Gentlemen and Scholars: College and Community in the "Age of the University," 1865-1917* (University Park, Pa.: The Pennsylvania State University Press, 1992), 51-52. On the curricula of academies generally, and New York academies specifically, see, for starters, Theodore Sizer, *Age of the Academies* (New York: Bureau of Publishing, Teachers College, Columbia University, 1964); George F. Miller, *The Academy System of the State of New York* (Albany, NY: J.B. Lyon Company, 1922); and Edward Herring O'Neil, "Private Schools and Public Vision: A History of Academies in Upstate New York, 1800-1860" (Ph.D. dissertation, Syracuse University, 1984).

[5] *Annual Report of the Regents of the University of the State of New York, 1836-1850* (Albany, N.Y.: The State of New York, 1845).

[8] Jurgen Herbst, *The German Historical School in American Scholarship: A Study in the Transfer of Culture* (Ithaca, N.Y.: Cornell University Press, 1965).

[9] "An ACT to establish the Cornell University," *Journal of the Senate, New York State*, 21 April 1865 (Albany, N.Y.: The State of New York, 1865), 856-860; also reprinted in Becker, *Cornell*, 161-167.

[9] In a letter meant to set the record straight on his importance in Cornell's history, Andrew White recounted some of the politicking involved in gaining passage of the bill: "Letter from Andrew D. White to George L. Burr and Ernest W. Huffcut, 1893," reprinted in Becker, *Cornell*, 172-180. See also 90-110 for Becker's own description of events.

[9] Earle D. Ross, *Democracy's College: The Land Grant Movement in the Formative Stage* (Ames, Iowa: The Iowa State College Press, 1942), 77; Becker, *Cornell*, 63.

[10] Veysey, *The Emergence of the American University*, 63.

[11] Ross, *Democracy's College*, 21.

[12] Daniel W. Lang, "The People's College, The Mechanics' Mutual Protection and the Agricultural College Act," *History of Education Quarterly* 18 (Fall, 1978): 300, 301. On the phenomenon of mechanics' institutes and popular science lectures, see James D. Watkinson, "Useful Knowledge? Concepts, Values and Access in American Education, 1776-1840," *History of Education Quarterly* 30:3 (Fall, 1990): 351-370; Edward W. Stevens, Jr., "Technology, Literacy and Early Industrial Expansion in the United States," *History of Education Quarterly* 30:4 (Winter, 1990): 523-544; Hyman Kuritz, "The Popularization of Science in Nineteenth Century America," *History of Education Quarterly* 21:3 (Fall, 1981): 259-274; Donald M. Scott, "The Popular Lecture and the Creation of a Public in Mid-Nineteenth Century America," *Journal of American History* 66 (March, 1980): 791-809; and Thomas Bender, *New York Intellect: A History of Intellectual Life in New York City, from 1750 to the Beginning of Our Time* (Baltimore, Md.: The Johns Hopkins University Press, 1987), 46-88.

[13] Lang, "People's College," 303-306; 313-319.

[14] On the waxing and waning of agricultural society popularity and influence, with specific attention to New York; and on various waves of enthusiasm for agricultural improvement, including agricultural education, see Margaret W. Rossiter, "The Organization of Agricultural Improvement in the United States, 1785-1865," Alexander Oleson and Sanborn C. Brown, eds. *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial Times to the Civil War* (Baltimore, Md.: The Johns Hopkins University Press, 1976), 279-298.

[15] Ross, *Democracy's College*, 27-28.

[16] Becker, *Cornell*, 103-105; 156-157; Ross, *Democracy's College*, 47.

[17] On the curricula of academies, specifically in New York, see O'Neil, "Private Schools," 102-116, and Miller, *The Academy System*, 101-130. Both these descriptions draw on the extensive compilations published in the Annual Report of the Regents. See also Natalie Naylor, "The Encouragement of Seminaries of Learning: Early Academies on Long Island, New York" (paper presented at the History of Education Society Annual Meeting, Toronto, 1988); Louis B. Caruana, "Oxford Academy, 1792-1896: The Private Years of a New York State Academy" (Ph.D. dissertation, Texas A&M University, 1986); Harvey S. Reed, "The Period of the

Academy in Connecticut, 1780-1850" (Ph.D. dissertation, Yale University, 1942); Lucy Townsend, "The Gender Effect: The Early Curricula of Beloit College and Rockford Female Seminary," *History of Higher Education Annual* 10 (1990): 69-90; Robert E. Belding, "Academies and Iowa's Frontier Life," *Annals of Iowa* 44:5 (1978): 335-358; Lynne Templeton Brickley, "Sarah Pierce's Litchfield Academy, 1792-1833" (Ed.D. dissertation, Harvard University, 1985); and Thomas Woody, *A History of Women's Education in the United States*, 2 Vols. (New York: The Science Press, 1929), esp. Vol. 1, 563-571.

[18] Joseph Kett, *Rites of Passage: Adolescence in America, 1790 to the Present* (New York: Basic Books, 1977), 26.

[19] Since soon after its founding in 1832, Genesee Wesleyan had consistently ranked among the two or three largest academies recognized by the New York State Board of Regents. In 1847-1848, the year before the college was organized, the seminary enrolled a total of 508 students, 328 of which qualified as advanced students, making it the largest of the 156 such academies recognized by the state in that year. *Report of the Regents*, 1849. This position of prominence only increased after the college was founded.

[20] "Catalogues of Genesee Wesleyan Seminary," 1834, Account Book #170a and "Bulletins," Box #14, Genesee Wesleyan Seminary Collection, Syracuse University Archives, George Arents Research Library, Syracuse University, Syracuse, New York. Hereafter this collection will be referred to as GWSC.

[21] Figures on the geographical distribution of students and subscribers compiled from "Catalogues of Genesee Wesleyan Seminary," and Account Books #178, #102, and #59, GWSC. See Nancy Beadie, "Defining the Public: Congregation, Commerce and Social Economy in the Formation of the Educational System, 1790-1840" (Ph.D. dissertation, Syracuse University, 1989), 246-346.

[22] *Journal of the Assembly of the State of New York* (Albany, N.Y.: The State of New York, 1834, 1838); Beadie, "Defining the Public," 277.

[23] This financial and political leverage was made possible by the sophistication of Methodist Church organization. The classic statement of the organizing powers of antebellum denominations, with particular emphasis on the Methodists, is Donald Mathews, "The Second Great Awakening as an Organizing Process, 1780-1830: An Hypothesis," *American Quarterly* 21 (1969): 23-43. Supporting evidence for the South is provided in *idem*, *Religion in the Old South* (Chicago, University of Chicago Press, 1977). See also Nathan Hatch, *The Democratization of American Christianity* (New Haven: Yale University Press, 1989), 56-62; Michael George Nickerson, "Sermons, Systems and Strategies: The Geographic Strategies of the Methodist Episcopal Church in its Expansion into New York State, 1788-1810," (Ph.D. dissertation, Syracuse University, 1988); and Beadie, "Defining the Public," 161-204.

[24] *Journal of the Assembly* and *Journal of the Senate, State of New York* (Albany, N.Y.: The State of New York, 1849, 1854, 1856, 1864, 1865).

[25] For a description of how the Regents' system of incorporation and funding worked, see Miller, *The Academy System*, 19-30.

[26] Ezra Cornell's funding commitment at the time of incorporation in 1865 was for $500,000. The estimated value of the New York State land grant at this time was $600,000. In the end, though,

Cornell University received about 6 million dollars in endowment on sale of the land and scrip. Becker, *Cornell*, 111-117. For a full examination of the financial arrangements behind the original endowment, see Samuel D. Halliday, *History of the Federal Land Grant of July 2,1862... as Relating to Cornell University* (Ithaca, N.Y.: Ithaca Democrat Press, 1905).

[27]"Minutes of the Board of Trustees of Genesee Wesleyan Seminary," 17 Aug. 1848, 7 Sept. 1848, 24 Oct. 1848, and 2 Jan. 1849, Account Book #178; and "Minutes of the Board of Trustees of Genesee College," "Document D," entered after 8 Jan. 1868, Account Book #106, GWSC.

[28]"Document D," Account Book #106, GWSC. Other academies succeeded in acquiring university charters for the founding of affiliated colleges in the 1850s. See, for example, the case of Alfred Academy and University described in Kathryn Kerns, "Farmers' Daughters: The Education of Women at Alfred Academy and University Before the Civil War," *History of Higher Education Annual* 6 (1986): 11-28.

[29]"An ACT to establish Genesee College," 27 Feb. 1849, entered in the "Minutes of the Board of Trustees of Genesee College," Account Book #106, #170a.

[30]"Catalogues of Genesee Wesleyan Seminary," 1851-2, Account Book #170a, and "Bulletins," Box #14, 1851-1852, GWSC.

[31]For descriptions of the Cornell Plan of 1866, see Becker, *Cornell University*, 118-119; and Frederick Rudolph, *Curriculum: A History of the American Undergraduate Course of Study Since 1636* (San Francisco: Jossey-Bass Publishers, 1977), 118-119.

[32]Under "mathematical and experimental sciences," the Seminary catalog for 1850 lists, among other subjects: mechanics, surveying, uranography, navigation and spherical astronomy, civil engineering, perspective drawing, chemistry, and agricultural chemistry. Not all these subjects got a separate mention after the college opened. That civil engineering was still being taught, however, is indicated by a note regarding the purchase of instruments for "the department of surveying and civil engineering" in 1853. "Catalogues," 1850, Account Book #170a; "Bulletins," Box 14; and "Minutes of the Board of Trustees for Genesee College," 30 Nov. 1853, Account Book #106, Genesee Wesleyan Seminary Collection.

[33]"Bulletins," 1851-1852; Becker, *Cornell University*, 118-119; Rudolph, *Curriculum*, 118-119. On the intersections and tensions between the German model of civil service education and the Anglo-Scottish tradition of civic education, see Jurgen Herbst, *The German Historical School*, 53-71.

[34]"Bulletins," 1851-1852.

[35]*Ibid.*, 1854,1857; also "Minutes of the Board of Trustees of Genesee College," Jan. 1857, Account Book #106, GWSC.

[36]Becker, *Cornell University*, 118-119; Rudolph, *Curriculum*, 118-119.

[37]No official decision to admit women into Genesee College was made by the trustees. Instead, the trustees accepted a petition in 1850 from a leading female teacher, advocating that women "be entitled to all the rights and privileges and honors of the College." They then directed its publication in *The Northern Christian Advocate*, and quietly went about admitting women to the College. Female representation hovered around 14-15 percent throughout the 1850s and 60s. Women were included in all the courses (including the full classical course) of the college.

No special "ladies' course" was organized within the college as at Oberlin College or Alfred University, though a female course (later called a "graduating ladies' course") continued to be offered through the seminary as it had been since the 1830s. For comparative examples of coeducation in this period see, Kerns, "Farmers' Daughters;" John Rury and Glenn Harper, "The Trouble with Coeducation: Mann and Women at Antioch, 1853-1860," 26:4 (Winter, 1986): 481-502; and Ronald Hogeland, "Coeducation of the Sexes at Oberlin College: A Study of Social Ideas in Mid-Nineteenth-Century America," *Journal of Social History* 6:2 (Winter, 1972-3): 160-176. On the position of White regarding coeducation, and on the events surrounding the eventual achievement of coeducation at Cornell, see Patricia Foster Haines, "For Honor and Alma Mater: Perspectives on Coeducation at Cornell University, 1868-1885," *Journal of Education* 159:3 (August, 1977): 25-37; and Charlotte Conable, *Women at Cornell: The Myth of Equal Education* (Ithaca, N.Y.: Cornell University Press, 1977).

[38]On the success of female Regents academies in New York; and on the incentive which this success gave to other institutions to admit women and to shape courses on the model of those of female academies, see Nancy Beadie, "Emma Willard's Idea Put to the Test: The Consequences of State Support of Female Education in New York," *History of Education Quarterly* 33:4 (Winter, 1993): 543-562.

[39]The quotation is from the "Letter from Andrew D. White to Gerrit Smith, 1862," cited by White himself as evidence of his vision of the university, and reprinted in Becker, *Cornell*, 154-158.

[40]Selling subscription scholarships was a common way of capitalizing educational institutions in the antebellum era. On the prevalence of subscription fundraising, including the sale of subscription scholarships, see systematic studies of academies and colleges by O'Neil, "Private Schools," 74-76; and Burke, *Collegiate Populations*, 40-47; respectively. Incidental evidence of the ubiquity of this practice can be found in many institutional histories, institutional archives, and local historical societies. See, for example, W. Bruce Leslie, *Gentlemen and Scholars*, 11-28; *idem*, "Localism, Denominationalism, and Institutional Strategies in Urbanizing America: Three Pennsylvania Colleges, 1870-1915," *History of Education Quarterly* 17 (1977): 235-256; David B. Potts, "'College Enthusiasm!' As Public Response, 1800-1860," *Harvard Educational Review* 47 (Feb., 1977):28-42; *idem*, *Baptist Colleges in the Developmental American Society; 1812-1861* (N.Y.: Garland Publishing, Inc., 1988); *idem*, *Wesleyan University, 1831-1910: Collegiate Enterprise in New England* (New Haven: Yale University Press, 1992), 9-13; David Stameshkin, *The Towns College: Middlebury College, 1800-1915* (Middlebury, Vt.: Middlebury College Press, 1985), 42. Evidence from cursory searches of archives and historical societies include: "Newbury Seminary Subscription Book," 1833-1839, Flat Box 2 (Fragile Items), "Button's Subscription Book," 1868 and "Subscription Book," 1875, Vermont Conference Seminary, Financial Box B, Vermont College Archives, Gary Library, Montpelier, Vermont; "Subscription Books," 1809-1846, Box II, Middlebury College Records, Sheldon Museum and Library, Middlebury, Vt.; "Subscription List," n.d., Cazenovia Academy, Box 1, Folder 4, Genesee Conference Records, Methodist Archives and History Center, Drew University, Madison, N.J.

[41]"Endowments, Subscriptions," Box 2, O.AVC, Genesee College, Syracuse University Archives, George Arents Research Library, Syracuse University, Syracuse, N.Y. Henceforth this collection will be referred to as GC.

[42]As noted previously, the 1848 plan was to raise funds to endow the seminary, and, as part of that development plan, to acquire a college charter "for the Seminary," under the title "Genesee

University." After the legislative compromise of 1849, however, the Seminary trustees transformed this effort into a drive to raise funds to endow the separately chartered Genesee College. "Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 12 March 1849, Account Book #178, GWSC.

[43]As stated in the certificate shown here, a subscription entitled the subscriber, "himself, his heirs or assigns, to the privilege of having one scholar educated, either in said college or in the Genesee Wesleyan Seminary, continually, free from the regular tuition charges in any or all the solid branches taught therein." Subscription notes, "Endowments and Subscriptions," Box 2, GC.

[44]Figures compiled from report recorded in "Minutes of the Board of Trustees," Genesee Wesleyan Seminary, April 1850, Account Book #178, GWSC.

[45]During the 20 years of the institutions' association, college enrollment ranged from 66 to 140 and seminary enrollment from 451 to 1058, with peak years for both institutions from 1853 to 1864. The seminary's peak years were at the beginning of that period, and the college's toward the end.

[46]Figure for the total amount of subscriptions pledged compiled from subscription ledgers, Account Books #122, #68, #69, and #37. Figure for amount collected on subscriptions compiled from "Genesee College Financial," 1850-1871, Account Book #40; and "Genesee College Receipts and Disbursements," 1848-1873, Account Book #130; GWSC.

[47]The original goal for subscription pledges had been set at $50,000 ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 7 Sept. 1848, Account Book #178, GWSC). After this level had been achieved, a new goal was set for $100,000 ("Minutes of the Board of Trustees, Genesee College," 15 Sept. 1849, Account Book #106, GWSC). The college exceeded this goal for pledges by over $75,000. Moreover, the amount actually collected exceeded the pledge goal by almost $30,000. This 73 percent collection rate compares with a 52 percent collection rate on comparable Genesee Wesleyan Seminary subscriptions from 1830-1837. The improved rate reflects a general change in the norms of debt and credit relations during this period. See Beadie, "Defining the Public," 278-285.

[48]Figures on investments compiled from "Genesee College Financial," 1850-1871, Account Book #40; "Genesee College Receipts and Disbursements," 1848-1873, Account Book #130; and "Treasurer's Book, Genesee Wesleyan Seminary," 1831-1873, Account Book #56, GWSC; also from "Genesee College Financial Records," and "Endowments, Subscriptions," Box 2, O.AVC, GC.

[49]"Minutes of the Board of Trustees, Genesee College," 30 June 1852, Account Book #106, GWSC.

[50]*Ibid.*, 25 Aug. 1852.

[51]This strategy involved applying contemporary commercial business principles to management of the institutions. That meant making the transition from the previously accepted practice of *debt* accounting, in which maintenance and renewal of long-term debts was the norm, to a system of accounting and management in which the goals were "trying to get expenses within means," and using surplus funds to acquire income-earning investments ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 28 June 1853, Account Book #178, GWSC). Thus, the Genesee institutions' adopted a system of accounting in which funds would be "distributed under

appropriate heads" (1855), and eventually double-entry bookkeeping (1865) ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 27 June 1855, Account Book #107; and "Treasurer's Book, 1831-73, Genesee Wesleyan Seminary," 1865, Account Book #56, GWSC). In 1864, trustees expressed their amazement and gratitude to the college treasurer for "inaugurating a system of finance which has for the first time successfully brought us to a period where income exceeds the expenses of the instruction of the Institutions" ("Minutes of the Board of Trustees, Genesee College," 22 June 1864, Account Book #106, GWSC).

[52]Acceptance of this agreement is noted in "Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 25 Aug. 1852, Account Book #178; and "Minutes of the Board of Trustees, Genesee College," 25 Aug. 1852, Account Book #106, GWSC. The text of the agreement was entered into Account Book #106 after 8 Jan. 1868.

[53]The joint executive committee began operation in 1853. Its first act was "to recommend to the Trustees of the Seminary to instruct their Treasurer to pay over to the Treasurer of the College all contingent funds, and deposit with him his school and library funds when he has a surplus" ("Minutes of the Joint Executive Committee," 27 June 1853, Account Book #137, GWSC). In 1856 the College Treasurer unsuccessfully recommended "the consolidation of the two Boards of Trustees as far as possible" ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 15 July 1856, Account Book #107, GWSC). A new plan for "more perfect union and concert of action of the two corporations," including provision for one treasurer for both institutions, did gain approval in 1859 ("Minutes of the Board of Trustees, Genesee College," 1 March 1859, Account Book #106; and "Minutes of the Board of Trustees, Genesee College," 1 March 1859, Account Book #107; GWSC).

[54]Enrollments were broken out by subject area in the 1833 and 1834 Seminary catalogues. Already in 1833 these figures showed 90 students enrolled in lectures on natural philosophy, which included chemistry, botany, physiology, geology, mineralogy, and astronomy ("Catalogues of Genesee Wesleyan Seminary," 1833, Account Book #170a, GWSC).

[55]*Ibid.*, 1839-50. The subjects of Whitlock's lectures included much of what was implied at the time by agricultural and mechanical sciences. On the prevalence of the practice of public lectures, see Sally Gregory Kohlstedt, "Curiosities and Cabinets: Natural History Museums and Education on the Antebellum Campus," *Isis* 79 (1988): 413; and Stanley Guralnick, *Science and the Antebellum American College* (Philadelphia, Pa.: The American Philosophical Society, 1975), 127.

[56]In the Seminary bulletin first announcing the opening of the College in 1850, the trustees declared: "It is the design of the Trustees to make the scientific part of the course prominent," particularly in the sciences "which are especially adapted to the wants of this rich agricultural country." "Catalogues of Genesee Wesleyan Seminary," 1850, Account Book #170a, GWSC.

[57]"Bulletins," 1851-1870, Box 14, GWSC.

[58]"Catalogues of Genesee Wesleyan Seminary," 1834, Account Book #170a, GWSC. "Professor Whitlock stated that he was giving instruction in the branch of chemistry to 70 Seminary students in connection with the College class" ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 7 Oct. 1851, Account Book #178, GWSC).

[59]Guralnick, *Science*, 119-137; *idem*, "Sources of Misconception on the Role of Science in the Nineteenth Century American College," Nathan Reingold, ed., *Science in America Since 1820* (New York: Science History Publications, 1976), 59-61; Burke, *Collegiate Populations*, 69-72.

[60]"Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 7 Oct. 1851, Account Book #178, GWSC.

[61]"Minutes of the Joint Executive Committee," 30 Aug. 1853, Account Book #137, GWSC.

[62]*Ibid.*, 20 March 1856; "Minutes of the Board of Trustees, Genesee College," 16 Nov. 1858, Account Book #106, GWSC.

[63]"Minutes of the Board of Trustees, Genesee College," 1 March 1859, Account Book #106; "Minutes of the Board of Trustees Genesee Wesleyan Seminary," 1 March 1859, Account Book #107; "Bulletins," 1860, Box 14; GWSC.

[64]"Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 6 Jan. 1856 (music), and 15 July 1856 (commerce), Account Book #107; "Bulletins," 1856-60; and 1860-61, Box #14; GWSC. The "graduating ladies" course was an updated version of the "female course" which had always been offered at the Seminary, but now earned a diploma.

[65]"Minutes of the Board of Trustees, Genesee College," 20 June 1860, and "Document D," entered after 8 Jan. 1868, Account Book #106, GWSC; and "Endowments and Subscriptions," Box #2, GC.

[66]This process began in 1866 at a Methodist Episcopal Church convention. See "Minutes of the Board of Trustees, Genesee College," 27 June 1866, Account Book #106, GWSC; and "Relocation of the College, 1866-8," Box #2, GC.

[67]The removal of Genesee College to Syracuse is a complex story, involving a major reorganization of the Methodist Episcopal Church in New York in 1866, a state supreme court injunction in 1869, and several bills in the legislature over the period from 1867 to 1870. Briefly, in order to increase Methodist support of the college from outside western New York, college trustees and other Methodist leaders collaborated in 1866 on a plan for merging several geographical divisions of the church in New York, and for making the college a jointly-sponsored enterprise of the new church body. As a condition of the merger and of church commitment to a goal of raising $200,000 in new endowment for the institution, trustees agreed to seek removal of the institution to a more central location. In response, Syracuse business leaders, working in conjunction with Methodist leaders, got the Syracuse Common Council in 1867 to request $100,000 in bonds from the state to attract the college to the city, and launched a private subscription drive of their own to raise another $100,000. Meanwhile, Lima residents and at least one seminary leader organized a counter attack in 1868, involving a county-wide petition campaign against the bill for removal in the legislature, and, when that failed, a law suit. Although Lima partisans won their case in the state supreme court in 1869, they lost the battle for retaining the site of the college. Trustees and Methodist leaders circumvented the injunction with a separately chartered university in Syracuse, to be supported by funds originally dedicated to removal of the college. Once the university was chartered in 1870, several faculty and a number of students withdrew from the college to take up places in the new university. A summary of these events, though mostly from the winning Syracuse side, can be gleaned from "Relocation of the College, 1866-8," "Relocation of the College, 1869, etc.," and "Supreme Court Brief, 1869," Box #2, GC. Also, from the side of the victors, see W. Freeman Galpin, *Syracuse University: Pioneer Days* (Syracuse: Syracuse University Press, 1952), 1-26.

[68]On the moral philosophy taught at academies, see O'Neil, "Private Schools," 102-116.

[69]Miller, *The Academy System*, 53.

[70]*Report of the Regents*, 1850-1875.

[71]Increased emphasis on "special fees" as a source of income can be seen through examination of the "Treasurer's Book, 1831-1873, Genesee Wesleyan Seminary," Account Book #56, GWSC. This was especially true beginning in late 1855, when the treasurer began totaling separately music tuition, commercial school tuition, tuition for ornamental studies, and income from incidentals. "Regular tuition" in this period totaled only from $11 to $59 (as compared to several hundred dollars a quarter for music and commerce); and it disappeared entirely from the totals after 1857. Tuition for the main academic subjects was officially eliminated in 1867 ("Minutes of the Board of Trustees, Genesee Wesleyan Seminary," 7 Oct. 1867, Account Book #107, GWSC).

[72]Quoted in Conable, *Women at Cornell*, 56.

[73]The figure was 10 percent for the first class of students. Burke, *Collegiate Populations*, 71.

[74]*Ibid.*

[75]*Ten Year Book of Cornell University III, 1868-1898* (Ithaca, NY: Andrus and Church, 1898), 103-104, with fold-out chart. Agriculture peaked at seven students in one year in 1877. No law students graduated until 1888; no medical school existed in the first 30 years; nor does the advertised field of commerce and trade appear to have materialized in this period.

[76]Enrollment in the first year of Cornell's operation was over 400 (Burke, *Collegiate Populations*, 71). Total enrollment at the Genesee institutions ranged between 517 and 1151, averaging in the 800s for the 20 years of their association ("Bulletins," 1851-1871, Box #14, GWSC).

[77]"Letter from Andrew D. White to Gerrit Smith, 1862," Becker, *Cornell*, 157.

[78]It is perhaps more accurate to say that White had in mind the idea of the German university as represented by Henry P. Tappan at the University of Michigan. See the chapter on "University Life in the West" in White, *Autobiography*, esp. 279.

[79]In 1844, the Seminary was awarded "$2,300 annually for six years from the surplus revenues of the U.S. deposited fund" (printed bill pasted in the front of the "Minutes of the Board of Trustees, Genesee Wesleyan Seminary," Account Book #178, GWSC). Genesee College was awarded two different $6,000 grants from the same fund, one in 1854 and one in 1856 ("Genesee College Financial, 1850-1871," Account Book #40, GWSC). For a history of state grants of this kind to institutions in New York, see the pamphlet presented to the Legislature in support of Genesee's request, dated 12 Feb. 1856, "Founding of Genesee," Box #2, GC. Also, on federal deposit funds generally, see Donald Warren, "The Federal Interest: Politics and Policy Study," in John Hardin Best, ed., *Historical Inquiry in Education* (Washington, DC: American Educational Research Association, 1983), 158-179.

[80]White emphasized the "sectarian" character of Genesee's opposition to the Cornell bill, saying the College's representative "brought the whole force his sect to bear upon the legislature." With reference to the similar opposition experienced by Tappan in Michigan, White referred to "small sectarian colleges," each with its own "petty interest" (Andrew D. White, *Autobiography*, 300, 479). Historians have referred to a "drooping college" and "sectarian weaklings," which made "a strike demand" (Ross, *Democracy's College*, 78); to "a substantial and costly political bargain" that went "rather beyond the limit" (Becker, *Cornell*, 103-105); and to "the

far more unjust demand" of Genesee College (more unjust than that of People's College) for a share of the land grant (Halliday, Federal Land Grant, 17).

[81]See "Ezra Cornell's Defense Against the Charge of Being the Founder of an 'Aristocratic' University, 1865," and Becker's description of those events (Becker, *Cornell*, 156, 168-170).

[82]Bruce A. Kimball, *The "True Professional Ideal" in America: A History* (Oxford: Blackwell, 1992). For an overview of Kimball's idea of "architectonic," see 1-17; for his account of the specific historical shift referred to here (from polity to science), see 198-300.

[83]The Genesee institutions did explicitly invoke principles of democratic politics in making requests to the Legislature, in addition to actually enforcing such requests by collecting petitions. See, for example, the brief presented by the College in support of its request for a share of the federal deposit fund for education, dated 12 Feb. 1856. In that document the trustees cited census figures showing that the Methodists constitute fully one-quarter of the church members of the state, and argued that the institution had not yet received a corresponding share of state funds ("Founding of Genesee," Box #2, GC).

[84]See Curtis S. Johnson, *Islands of Holiness: Rural Religion in Upstate New York, 1790-1860* (Ithaca, N.Y.: Cornell University Press, 1989), 103-112; 145-164.

[85]For excellent, precise accounts of the development and consequences of increased urban and business influence *within* denominational boards of trustees, see Potts, *Wesleyan University*, 75-77 and the charts on changes in the endowment on 107 and 168; and Leslie, *Gentlemen and Scholars*, 31-54; 117-146.

[86]White developed his "warfare" typology in retrospect, when the issues had been decided in favor of business and science. The outcome was far less clear in 1865 when he was in the thick of it. See White's reference to his 1875 lecture "The Battle-fields of Science" and to his 1905 book, *The Warfare of Science with Theology* in White, *Autobiography*, 425.

"We Desired Our Future Rulers to be Educated Men:" South Carolina College, the Defense of Slavery, and the Development of Secessionist Politics

MICHAEL SUGRUE[1]

In the wake of the election of 1800, South Carolina Federalists sought a bipartisan modus vivendi that would secure their property and political ideals against the new political power of the Jeffersonian upcountry. The new Jeffersonian Governor, John Drayton, sought to allay fears of "Jacobin" social change, a charge often leveled at the Francophile Jeffersonians. He worked with Federalists to erect one of the most important institutional bulwarks against the radical political possibilities of the "revolution of 1800:" South Carolina College.[2] Governor Drayton supported the College because "the friendship of our young men would thence be promoted, and our political union be much advanced thereby."[3] Federalist William Henry DeSaussure, one of the legislators most closely associated with the founding of the College, stated "we of the lower country well knew that the power of the State was thenceforward to be in the upper country, and we desired our future rulers to be educated men."[4]

Both Drayton and DeSaussure were gentlemen and slaveholders, and they had an interest in making Jeffersonian democracy safe for South Carolina. DeSaussure, a prominent Charleston lawyer and a leading Federalist, articulated concerns shared by many influential lowcountry gentlemen.[5] Chancellor William Harper ('08), in his memoir of DeSaussure, emphasized the political intentions of the founders:

> This measure originated in the contest which had arisen between the upper and lower country of the state, with respect to representation in the legislature. The upper country, which at the adoption of the constitution of 1790, was comparatively poor and unpeopled, had allotted to it, a much smaller representation. It had now grown in wealth, far outnumbered the lower country in population, and imperatively demanded a reform in the representation. This the people of the lower country feared to grant, on the ground of general deficiency of intelligence and education in the upper country, which would render it incompetent to exercise wisely and justly the power which such a reform would place in their hands. It was to remedy this deficiency that it was proposed to establish a College at Columbia. The act was passed, not without difficulty, nor without the strenuous opposition of many who it was more especially intended to benefit.[6]

South Carolina College was a last gesture made by the wealthiest men of South Carolina's Revolutionary generation toward preserving their political ideals and elite status. The bill establishing the College was described revealingly in 1854, by an alumnus whose speech and thought were anachronistically saturated with an antique Federalism.[7]

> It was in the year 1801 that the initiative was taken in the first legislative act for founding this College. The period coinciding with a transfer of civil power—with a revolution that changed the relations of the parties which then divided—perhaps to some small degree may still divide the opinions of men—if not in this, at least in other States. It was in a house of Assembly, where the victorious party held yet only a divided rule; and their adversaries, though vanquished, still kept the field; that this great measure originated. It came as the last will and testament of the expiring party; and sounded like the proclamation of the conquerors announcing the terms granted in the hour of victory. It is fortunate indeed to find hostile parties agreeing in a great principle. Indeed it is a proud reflection that whatever may be the extravagance or madness of party, opposition to learning is no instrument of popularity in America.[8]

South Carolina College was the Noah's Ark of anachronistic political philosophy. Drayton, DeSaussure, and the other gentlemen who helped found the College gathered together conservative eighteenth-century political ideas, so that they could be kept safe on campus while the rest of the world was flooded by the nineteenth century. The waters of time, alas, never receded, and as the century wore on, the education given to these planters' sons moved from old fashioned to atavistic, from conservative to reactionary.

The College was located in the state capital, Columbia, just down the street from the state legislature. This close proximity both facilitated and symbolized the intimate connection between politics and education in South Carolina. The lavishly funded College was the most important political legacy of the post-revolutionary era because it institutionalized the transmission of doctrines and standards of judgement characteristic of South Carolinian Federalists, long after Federalism had ceased to dominate state politics. South Carolina College helped keep alive a tradition of political discourse which borrowed heavily from Federalism and the deferential "gentleman's politics" that it legitimized.

Many themes stressed by South Carolina's Federalist elite, such as the pursuit of republican virtue by an independent squirearchy, strict insistence upon the right of property in slaves, the support for virtual as opposed to actual representation, the belief

in natural aristocracy, the equation of democracy with demagoguery, and the abhorrence of factions and parties, were kept alive on campus and in the state house long after they became extinct elsewhere. When slavery was threatened, the social conditions that maintained their peculiarly "virtuous" (in the high Federalist sense of the term) society were jeopardized, and the gentry who dominated South Carolinian politics revived a remedy that had been threatened by South Carolina's politicians since the first abolition petitions were presented to Congress in 1790: secession.[9]

DeSaussure had hoped that the College would produce "able and worthy men for every department of government."[10] His hopes were realized. In 1836, the aged DeSaussure was elected president of the South Carolina Society for the Advancement of Learning (SCSAL), which began as the alumni association of the College, but became the SCSAL when the alumni association was opened to graduates of any college.[11] At the inaugural ceremony, DeSaussure was introduced by Governor McDuffie ('10) who said, "...we have only to look around us to see what South Carolina now is, and to consider what she would have been if the college had never been established...."[12] As he spoke, one of the two Senators, eight of the nine Congressmen, more than half of the state judiciary, and more than a quarter of the state legislature were alumni. He also might have noted that two alumni already had served as Governor of Alabama; alumni had been elected to Congress from Mississippi, Alabama, and Georgia; and alumni were prominent in the state judiciary of Alabama and Mississippi. The College had come a long way: from a political olive branch to the most important institutional mechanism for selecting South Carolina's political elite in the antebellum period.

By 1836, future Governors of Georgia, Florida, and Mississippi, and future Congressmen from Georgia, Alabama, Mississippi, and Louisiana, had already been graduated, as had the future president of the Florida secession convention. The alumni formed a regional elite, an "old boys" network whose social, intellectual, political, and marital connections formed an elaborate network with a hub in South Carolina. Congressman James Dellett ('10) of Alabama corresponded with at least sixty alumni in five lower Southern states. Senator James Henry Hammond ('25) of South Carolina corresponded with over one hundred. The old-boys network formed by College alumni was both extensive and durable. One Floridian illustrated the value of College connections in a letter to his classmate, Congressman William Colcock ('22), whom he had not seen or spoken to in a generation. The letter, which requested patronage for a young friend, begins:

> After the lapse of thirty years I claim the privilege of a College friendship by introducing you to my friend J. Cannaway Smith, Esq. of Florida, a leading member of the democratic party and a prominent member of the Bar. You are too well acquainted with the public men of our state to be reminded that Mr. Smith was one of the Electors in the late Presidential

> Canvass—The high and responsible offices of trust which he has filled in Florida afford the best evidence of the distinguished position which he occupies at home both as a gentleman and a politician—Mr. Smith is a native of South Carolina and like ourselves was once a student of the College at Columbia. I can only add that he is a worthy representative of his chivalrous state.[13]

The formidable power of the attachments made in the College were political as well as personal. In 1833, during the Nullification Controversy, James Dellett was urged to run for Congress against former Governor, and fellow University of Alabama Trustee, John Murphy ('08), but declined. He had known Murphy in College, and even though they had considerable political differences, they reached an accommodation. In a letter, Dellett revealed one node in his network of alumni political connections when he wrote that he had already confidentially agreed with Murphy not to run against him. Moreover, Dellett stated, he did not wish to go to Congress because he could not in good conscience act against the Nullifiers—not because they were right but because they were South Carolinians:

> ...[A]lthough I am satisfied in my own mind that So Carolina is wrong—yet I cannot forget that she nourished me in my infancy, and taught lessons I learned in my youth and early manhood. I am proud to say that I love her in the midst of her faults.... I could not voluntarily give a vote or strike a blow which would lacerate the cheek of my mother state.[14]

The College forged lasting attachments both to the state and its peculiar culture, but the South Carolina connection was sometimes as much a hindrance as a help. In December of 1860, the Governor of Florida, Madison Perry ('32) was attacked in the press as a "catspaw for South Carolina secessionists..." who, like other Palmetto radicals, "thought more of South Carolina than of the state of their adoption."[15] South Carolina College provided many prominent southern politicians with a theory which later informed their political practice. Henry L. Pinckney ('13), Congressman and Nullifier, noted with particular approval that the College had prevented the undergraduates from "contracting any of these prejudices which so unhappily prevail in other sections of our country, in reference to the internal policy of the Southern states."[16] Their experience of four years welded together a consensus on political matters which grew narrower and more strident in the years between 1805, when the College opened, and the afternoon of November 8, 1861, when all of the undergraduates on campus left their studies to join the Confederate army.[17]

The College gave these young gentlemen a "liberal" education, in the original, literal, sense of the term: the curriculum of the College fitted a man to be a master rather

than a slave. The College curriculum, which stressed classical languages and literature, was intended to train the students' minds in a broad, general sense rather than to prepare them for a specialized profession. The College gave the sons of the gentry an education designed to produce what Max Weber might have called the "ideal type" of a slaveholder. It was designed to take fourteen and fifteen year old boys and polish them into young eighteen and nineteen year old gentlemen. In their coursework, the students developed ideas; in their dormitory arrangements they developed friendships; and, in their extracurricular activities, they developed bad habits which often lasted their whole lives.

Reflecting back on his College days, one student noted the effect the educational regimen of the College had on the undergraduates:

> By the time he had reached his senior year, he had evolved into a personage of great dignity, who would have been immensely shocked by the boyishness of the modern student, and could by no means have understood the modern interest in football and baseball, games to his mind belonging normally to school-boy days. Almost the only athletic amusement in which any of the students participated was a grand tournament that took place at the Hampton racetrack near Columbia. Many of the students engaged in this, assuming each some chivalrous character and arraying himself in appropriate costume.[18]

The ideal of personal honor was sufficiently strong among these young men that by nineteen or twenty these personages of great dignity could only disdain boyish games. Intramural sports for them meant jousting. Pseudo-feudal posturing was a conspicuous element in the culture of South Carolina's elite, and the students could not ignore this ubiquitous influence. In an 1857 letter, one student wrote to his father that he had just heard a splendid lecture on "Chivalry," that several young men were expected to duel the next day, and that the architecture of the new State House "reminds as much of the Feudal ages as the frequency of duels does."[19]

The most important extracurricular activity was debate. Antebellum South Carolina was primarily an oral culture. As the first president of the College, Jonathan Maxcy noted, "whatever the test in other lands, here a man must speak and speak well if he expects to acquire and maintain a permanent influence in society."[20] With only a few exceptions, all of the undergraduates were members of the two literary societies, the Clariosophic and Euphradian, and with membership came the obligation to engage in regular debate and declamation. The College cadet corps was established in 1824, and it allowed the students to drill, learn the use of firearms, study military tactics, and pay homage to the military virtues. Preparing to be a soldier or legislator were the main leisure activities that did not violate College rules.

The debate societies insured that the graduates of the College were effective public speakers and, even if their speeches lacked the austere rigor of the Roman orators they so admired, their bombastic, sentimental style of rhetoric served them well in court or in Congress. It was South Carolina College that produced what contemporaries described as "the South Carolina school of orator-statesmen."[21] The alumni of the College, such as Senator Louis T. Wigfall ('37) of Texas, were seen as icons of "Southernness" largely because of their habits of speech. One contemporary described Wigfall as "a good type of the man that the institutions of the [South] produce... a remarkable man, noted for his ready natural eloquence; his exceeding ability as a quick, bitter debater; the acerbity of his taunts; and his readiness for personal encounter."[22]

The fact that the student body was recruited from the most influential families in the state meant that as alumni, these men would often find that the road to political office-holding had been paved by their relatives. The alumni of the College shared a lasting esprit de corps, plus a sense of noblesse oblige or at least a sense of noblesse, which was both praised and inveighed against by contemporary observers. As President Thornwell remarked in 1853,

> [to] make any commonwealth a unit, educate its sons together. This is the secret of the harmony which has so remarkably characterized our state. It was not the influence of a single mind, great as that mind was—it was no tame submission to authoritative dictation. It was the community of thought, feeling, and character, achieved by a common education....[23]

Thornwell could not have been referring to a common primary or secondary education for South Carolina's "sons," because wealthy boys were generally taught by private tutors; sons of the poor were restricted to a public school system that was acknowledged by all to be dreadful. This meant that the College was effectively restricted to the sons of planters. With students drawn almost exclusively from the gentry, the College could hardly help but propagate a class based on the community of "thought, feeling and character."

This community of thought and feeling was socially constructed and reproduced in the College. In the required course on moral philosophy, the students studied the arguments in favor of slavery, and they emerged well versed in pro-slavery apologetics.[24] In addition, the undergraduates were taught the laws of honor and the relation of these laws to their religious and civil obligations.[25] They were taught that strict construction was the only legitimate kind of Constitutional interpretation and that secession was a constitutionally prescribed remedy to Federal usurpation.[26] Moreover, the students' extracurricular activities, their mores, and their sense of honor remained remarkably similar over time. A study of the wealthiest families in South Carolina showed that South Carolina College was without serious competition as the most popular institution of higher education for their sons.[27] Slightly more than 3,000 students matriculated

between 1805 and 1862, and they were overwhelmingly the sons of wealthy cotton and rice planters. At least nine in ten of these students grew up in South Carolina. Those that did not were usually sons of alumni that had moved to the lower south or the sons of prominent southern politicians attracted by the ideological bias of the College.[28]

One professor described his students as "the young lords of slaves" and as "young men of affluence or independence."[29] If, by good fortune and steady application, a "poor scholar" were to get an education which would enable him to meet the strict entrance requirements, there was still the problem of tuition and associated costs.[30] One critic of the College estimated the cost of a year's education at between $500 and $1000, and, while this was surely an exaggeration, it is clear that education at South Carolina College was beyond the means of most citizens.[31]

The alumni of South Carolina College shared many habits, particularly certain habits of thought, expression, and action. They were, for example, in the habit of marrying each others' sisters and cousins.[32] They habitually chose the same adult occupations: planting, politics, the learned professions. The students socialized in the same elite circles; moreover, as undergraduates did then and do now, they often got into trouble together.

The rules drawn up by the Trustees were quite elaborate, and the faculty had the power to warn, admonish, reprimand, or suspend students for violations. The Trustees reserved the power of expulsion for themselves, and when the faculty recommended incorrigible hellions for expulsion, the Trustees often refused, especially for the sons of powerful public figures. This had the effect of eroding the faculty's disciplinary authority, and the professors often found it more effective to coax the students than to threaten them with a suspension not easily distinguishable from an impromptu vacation. As one alumnus recalled, "colleges depend, for the most part, on the patronage of the scholars. The faculties are compelled to choose between discipline and bread."[33] It is thus not surprising that the most effective professors were those with keenly persuasive rhetorical styles.[34] It is even less surprising that after an investigation by the Trustees of particularly conspicuous student misbehavior in 1813, it was found that College "discipline had been almost totally relaxed."[35] William Grayson ('09) remembered that:

> [t]he raw freshman is subjected to the influence of companions a little older than himself. He is anxious to emulate the high spirited example of his senior. He makes rapid advances in smoking, chewing, playing billiards, concocting sherry cobblers, gin slings and mint juleps, becomes an adept at whist and "Old Sledge," in champaign [sic] and hot suppers, to say nothing of more questionable matters, and takes degrees in arts and sciences about which his diploma is altogether silent.[36]

The same offenses, such as gambling, heavy drinking, brawling, carrying concealed weapons, discharging weapons on campus, dueling and threatening to duel, swearing, skipping class to attend cockfights or horseraces or dances, seem to have been perennial favorites with the undergraduates because they appear with considerable regularity in the disciplinary records. The students of South Carolina College were not more unruly than fifteen to twenty year old males were in other places and times, but the peculiar forms that their misbehavior took is noteworthy.[37] The pattern of their transgressions reveals much about the overall character and personality of the students. In fifty-seven years of College disciplinary records (1805-62), there are many crimes of violence, self-indulgence, and pride, but very few of dishonesty. In particular, drunken brawling and the physical abuse of the College servants (slaves) was common, but there are almost no records of theft, lying, or cheating on exams.[38]

The undergraduates shared a certain ethos; their behavior reflected in many ways a commonly agreed upon set of judgements of right and wrong. As one alumnus said, "The College boys of that time seemed to draw a well defined circle, within which there were things counted mean and low. Into that circle very few students dared intrude. Unfortunately, the radius of that circle was rather short."[39] Breaches of honor and etiquette were not tolerated among the students. Of the few records of theft in the antebellum campus, most were settled entirely among the students. The campus debate societies conducted investigations and expelled the dishonorable thieves. No other students would have anything to do with such pariahs, and they inevitably left campus in disgrace.[40]

Violence was an important trope of cultural expression for South Carolina's males, and the students could directly observe the fact that many of the state's most influential figures publicly cultivated a pose of genteel defiance. A known propensity toward violence was something of an advantage in the rough and tumble world of South Carolinian politics. Consider the following case from the career of James H. Irby ('17):

> Colonel Irby was sitting with some lawyers after the adjournment of court playing a game of whist. The Colonel made an offensive remark about the testimony of one of the surveyors in a land case which he had before the court that day. One of the lawyers told him that the surveyor alluded to was his uncle. Colonel Irby immediately apologized, and said he did not know of the relationship or he would not have made the remark. This emboldened the lawyer to make further comment on the remark, to which the Colonel replied again apologetically. But the more he apologized, the more resentful became the lawyer.[41]

The formalities here are noteworthy. Colonel Irby had apologized for making the remark, not for the content. This statement is a less than satisfactory apology, and an

implied public insult to the lawyer and his uncle. The lawyer became heated and required more of an apology, but Irby's own honor was on the line. Colonel Irby could not admit that he impugned a man's integrity without cause, so the exchange became progressively uglier. The lawyer continued to press for a concession of his uncle's integrity, dodged politely until threats replaced retractions.

> At length Colonel Irby became excited. "I have done all I could do to appease you, and inasmuch as you refuse to accept my apologies, I now say your uncle is a damned old rascal, and I believe he swore a lie in the case—help yourself." This seemed to reconcile the indignant kinsman.[42]

"Help yourself" was an invitation to deadly force. Regardless of the Byzantine rituals of etiquette and the veneer of polite courtesy, violence and the threat of violence were fundamental elements in the political culture of antebellum South Carolina. In this case, Colonel Irby ended his dispute with the lawyer by an implied appeal to the code. Far from disqualifying students from public office, developing a reputation for violently defending one's honor may have helped prepare the young men for political life by allowing them to threaten people as convincingly as Colonel Irby did. Many of the violent young men of the Maxcy era made their most conspicuous early appearances in public life by fighting duels.[43] Colonel Irby was an honorable man and a prominent lawyer; it is not surprising that he was eventually elected Lieutenant Governor of South Carolina.

The second president of the College, Thomas Cooper, never fully appreciated the atavistic import of honor and dueling for his students, and this sometimes made discipline go from bad to worse. One alumnus noted, "He was an entire stranger to Southern society and he knew nothing of the peculiarities of Southern youth." Being a foreigner, Cooper never understood the "spirit" of slavery.

> ...[H]e had to govern Southern youth. Whether for better or worse, they have their peculiarities, which spring from the manners, customs and institutions of the country. In certain particulars he erred grievously in his estimate.... Dr. Maxcy, as Dr. Henry tells us in his eulogy, judged differently. He saw in Southern youth a conviction of independence and a disposition to assert and exercise it. He did not attempt to extirpate this elevated principle, but to modify it. He appealed to the honor of his pupils, and with generous minds the appeal was always powerful, and generally successful. If there be any among us who object to this—let them abolish the institution of slavery; for that spirit is born of it.[44]

The College gave to this nebulous "spirit of slavery" a behavioral form in the rules of etiquette and the code of honor. One of the "peculiarities" of the "Southern youth" who populated the College was a powerful desire for the maintenance of honor, which amounted to the recognition by others of patrician status in a society whose most prominent feature was inequality. The textbook which the students used in their classes on moral philosophy defined the law of honor as "a system of rules constructed by people of fashion, and calculated to facilitate their intercourse with one another.... [T]his law only prescribes and regulates the duties betwixt equals; omitting such as relate to the Supreme Being, as well as those which we owe to our inferiors."[45]

Because its students often became politically influential adults, the College indirectly influenced the political culture of the whole state. Preston Brooks might have graduated with the class of 1839, had the nineteen year old not been expelled a week prior to graduation because of his fondness for liquid refreshments and his tendency, when excited, to threaten people with the dueling pistols he kept in his dormitory room.[46] In the 1850s, when he served in Congress, he broke a cane over the head of Senator Charles Sumner of Massachusetts. Every graduate of the College knew that the laws of honor required satisfaction for disrespectful words between gentlemen—an apology or a duel. The "code" further held that a man who would not duel was no gentleman, and if a gentleman were offended by a social inferior, an honorable recourse was to publicly cane the offending scoundrel. Brooks, who was not excessively touchy by Carolinian standards, felt that etiquette obliged him to beat Senator Sumner senseless with the appropriate ceremonial instrument. Brooks was expelled again, this time from the House of Representatives; his constituents reelected him immediately and without opposition.

The students who were conspicuous for their misdeeds were great favorites among the student body if they managed to acquit themselves stylishly, and being expelled was not necessarily a problem, as can be seen in the case of Brooks. Professor Francis Lieber noted in his diary:

> February 14, Story from real life. I arrived here in October, 1835. In January 1836, W—— and another student were expelled on account of a duel. Since that time W—— has:
> First. Shot at his antagonist in the streets of Charleston.
> Second. Studied (?) law with Mr. DeSaussure in Charleston.
> Third. Married.
> Fourth. Been admitted to the bar.
> Fifth. Imprisoned two months for the above shooting.
> Sixth. Become father of a fine girl.
> Seventh. Practiced law for some time.
> Eighth. Elected member of the Legislature.
> Now he is only twenty-two years old. What a state of society this requires and must produce![47]

The "state of society" was favorable to men like Louis T. Wigfall ('37), a bad-tempered, hard-drinking student, who was a flamboyant disciplinary problem during his collegiate years. He never went out in public without two loaded pistols, and people were generally very polite toward him. He was described as having a "monomania on dueling."[48] After graduation he killed one of his classmates in a street fight, dueled twice with Preston Brooks (both were wounded), then became a lawyer in Texas.[49] In January, 1860, William Campbell Preston ('09), former Senator from South Carolina who had been president of the College while Wigfall had been a student there, wrote Wigfall, his former student, reflecting:

> ...poor Pres Brooks, your old adversary, was afterwards my friend when we were colleagues together in Congress... life tumbles us together very oddly, and it seems to me as I jog on, that all the good boys have gone out of mind, while all the headlong ones, whose ruin was speedily predicted, are turning up as colonels, judges, and Senators.[50]

Senator Wigfall was unable to reply to his teacher's letter, being occupied in Congress bringing Texas out of the Union.

The College initiated students into the rules of honor, particularly the violent folkways that validated a man's claim of being an honorable gentleman.[51] Dueling, caning, posting a man for cowardice, and the other violent customs were closely observed by the students while in College and later in life. Dueling was never eradicated regardless of the sanctions imposed. In 1834, one alumnus observed, "the frequency of challenges and duels amongst the students is very injurious to the College. I am informed that there have been two challenges to fight duels amongst the students within a few weeks past."[52] Neither of these is mentioned in the faculty minutes or local newspapers. Every student on campus either had a pair of dueling pistols or knew where a set could be quickly obtained.

The only duel between undergraduates that resulted in fatalities was fought in 1833 between juniors A. Govan Roach and James G. Adams:

> Both men were of fine families, and ... they were very intimate friends; they sat opposite each other in the Steward's hall at table. When the bell rang and the door was opened, the students rushed in, and it was considered a matter of honor, when a man got hold of a dish of butter or bread, or any other dish, it was his. Unfortunately, Roach and Adams sat opposite each other, and both caught hold of a dish of trout at the same moment. Adams did not let go; Roach held onto the dish. Presently Roach let go of the dish and glared fiercely in Adams face, and said, "Sir, I will see you after supper." They sat there

> all through supper, both looking like mad bulls I presume. Roach left the supper room first, and Adams immediately followed him. Roach waited outside the door for Adams. There were no hard words and no fisticuffs—all was dignity and solemnity. "Sir," said Roach, "What can I do to insult you?" Adams replied "This is enough, sir, and you will hear from me."[53]

One young man was killed, the other was wounded and drank himself to death two years later. In another case, a teenage student formally challenged the sixty-seven year old Thomas Cooper to a duel.[54] However excessive and vainglorious, these lessons in status maintenance were very important because in the absence of bureaucratized political parties, dueling and the associated rituals of violence were more important than in other states in identifying those men who were legitimate bearers of political power. "Honor" was the bridge between the politics and ethics of the slaveholding class, and the College homogenized and articulated the mores associated with honor.[55]

The volatility of the students fostered both strong friendships and sharp antagonisms as well. Marion Sims ('32), aptly described the undercurrent of violence in the student's relations with each other:

> One day as we were sitting down to dinner, at one o'clock, James Aiken ... playfully pulled my chair out from behind me. I happened to see it, and didn't sit down, but mechanically turned around and pulled Witherspoon's chair out from under him. Witherspoon didn't see me, and fell plump on the floor. He was a man of great dignity.... I hoped he would receive my apology in the spirit in which it was tendered. He received it very gruffly, saying he was not at all satisfied. He could not get over the indignity offered his person. After dinner he spoke to me of the matter again. Again I repeated my apology; he still said he was not satisfied. I then became indignant, and said: "I have done all that a gentleman can do. Now sir, help yourself." I did not want to appear before my comrades as if I were afraid of anything or anybody. If Witherspoon had been a fool, he would have challenged me. If he had been a coward he would have knocked me over; for I was a little fellow and he was a big fellow.... I am now satisfied that if Witherspoon had been foolish enough to have challenged me to a duel, I should have accepted it, even at the risk of losing my own life or killing him.[56]

Gentlemen of great dignity like nineteen year old Witherspoon did not care for boyish games and were very sensitive about points of honor.[57] Using the same verbal

formula as the blustering Colonel Irby, Sims offered Witherspoon a chance to kill him over this silly horseplay rather than appear to be afraid of anything or anybody. The feisty one-hundred-and-seven pound Sims had a short fuse and was very sensitive about maintaining his honor. Moreover, he had no hesitations about appealing to the code to resolve disputes: "while I was a student at South Carolina College, if anything had happened to have made it necessary for me to fight a duel, I would have gone out with the utmost coolness...."[58]

In other states, in the wake of especially regrettable results such as the death of Alexander Hamilton, dueling had gone into disfavor. Not so in South Carolina. One polite atrocity after another scars the annals of South Carolinian politics. Although gentlemen throughout the South occasionally had recourse to the code, nowhere was dueling a more important or conspicuous part of political life than South Carolina.[59] The reason for this may be that in South Carolina there was more of a need for it. Politics in antebellum South Carolina was not bureaucratic but charismatic. One alumnus noted: "Then politics were altogether of a personal character. There were no great principles at stake; it was simply whether this or that *man* should be elected; and the man who was the most popular, and had the most money, and could buy the most whiskey, was generally the man that carried the day."[60]

Every state, including South Carolina, needed to identify and promote political leaders on a regular basis. In other states during the antebellum period, these functions were bureaucratically performed by political parties. Whatever else dueling involved, an important function of dueling in South Carolinian politics was the "routinization" of charisma.[61] Politicians in the Palmetto state (and the students in the College) held fast to the atavistic antiparty ideals of the Federalist era, and, in the absence of parties, dueling served as a marker of status; the duelist was the man of honor, and the honorable gentleman was the legitimate bearer of political power. Despite the rules against dueling, South Carolina College prepared its graduates to enter this unusual system of selection. Dueling did benefit many alumni early in their political careers. Among those who had graduated during the Maxcy years, there were many prominent politicians who had proven themselves "gentlemen of the code." William Campbell Preston ('12), who eventually became president of the College, issued at least one challenge during the Nullification Crisis.[62] George McDuffie ('13) engaged in a series of spectacular duels in 1822 which helped make him nationally prominent.[63] The symbolism of the duel, with its ritual equalization of status by an aggrieved gentleman and the hazard of physical safety, would be revisited on the largest possible scale in 1861.

The College was as important in political theory as in political practice. The defense of slavery was taken up by the alumni, Trustees, faculty, and students since early in the history of the College. Henry Laurens Pinckney ('13), editor of the *Charleston Mercury*, threatened secession in response to antislavery agitation as early as 1823.[64] He eventually was elected to Congress, but made sure that another alumnus, John Stuart ('17), took over as editor. One of the earliest and most influential defenses of

slavery, the 1828 *Memoir on Slavery*, was written by Judge William Harper ('08), who also wrote the Ordinance of Nullification in 1832.

The secession movement, which originated in and around South Carolina College, had been actively promoted since the 1820s by Thomas Cooper and other conspirators, many of whom were connected with the College.[65] The development of secessionist politics was linked with free trade and the defense of slavery, and these doctrines were developed in the curriculum by a politicized faculty in the years following the Missouri compromise.

At the founding of the College there were only two members of the faculty, and at no time before 1860 were there any more than six professors. The first president of the College, Jonathan Maxcy, served from the opening of the College in 1805 until his death in 1820. He was a Baptist minister and a New England Federalist who took almost no part in political affairs. Perhaps he had his hands full with the unruly students and the high turnover of faculty. Most of the professors of the Maxcy era left after two or three years, and none stayed more than five.

When the next president, Thomas Cooper, arrived on campus in 1820, politics moved from being a peripheral to a central concern of collegiate education. Cooper had only been on the faculty a few months when Maxcy died, yet he had sufficiently impressed the Trustees to be appointed Maxcy's successor. Cooper remained on the faculty until 1834, when he was ousted by a heterogeneous coalition of political and religious enemies, but while he was on campus he was the dominant intellectual figure in the state. Cooper solved the problem of high faculty turnover by retaining on campus a group of cronies who shared his political enthusiasms. Under Cooper, the faculty formed an intellectual vanguard that advocated extreme antitariff, states rights, proslavery, and ultimately secessionist political views. The faculty was conspicuous within the state capital, a town of only three or four thousand people, and their views were no secret to the students.

Cooper, an expatriate Englishman, had been an agitator all his life. In 1819, just before he joined the faculty, he had been publishing newspaper articles against the protective tariff, against the Missouri Compromise, and in favor of the perpetuation of slavery.[66] Once ensconced in the president's chair, he redoubled his efforts. As one of his students recalled:

> He loved excitement and would participate in it wherever it was to be found... he was a partizan (sic) of more than usual bitterness....He had already reached conclusions on every possible question of morals, politics and religion. No man was more tenacious, dogmatic, or had a bolder or more uncompromising spirit.[67]

Cooper often posed as a defender of individual freedom, and occasionally he was, but it often appears that this was more a posture than a principle. With vast exaggera-

tion, he painted himself as an unoffending advocate of civil rights, persecuted by ignorant sectarians. Cooper modestly stated that he had the misfortune of running "half a century ahead of the knowledge of the day; ... if a man is bent on doing this, he should make up his mind to meet the consequences, and count the cost."[68] Cooper had no sense of proportion, and he often abused his opponents, both religious and political, in terms that are nearly slanderous. In 1828, he wrote to David McCord, an alumnus, a personal friend, and editor of the pro-Nullification *Columbia Southern Telescope*: "All the tariff men rely on exciting a revolt among our slaves."[69] The same factual foundation and emotional equilibrium is found in his published remarks on the clergy. "Who ordained the Sabbath? Those avaricious, ambitious, fraudulent and impudent impostors, the Christian priests. For what purpose? To create business for themselves; to obtain influence; to get money; to make their services necessary to the ignorant...."[70]

Many observers noted that his lectures were little more than propaganda for his self indulgent political commitments. The *Camden Journal* complained that Cooper "has not only been engaged in inculcating infidelity and irreligion, but in inoculating our youth with the virus of Nullification."[71] Another anxious father wrote that he sent his son to Princeton only "to avoid the infidelity and dissipation of S. Ca. College.... Many young men from the South since the College has gotten into infidel hands have gone to Northern institutions."[72] The tendentious content and gratuitously hectoring tone of his criticism are typical of his notorious "infidelity:"

> To say that any member of society is not of the productive class does not imply that we have not been prodigal in recompensing by salaries or by reputation, classes of an unproductive character, greatly to the detriment of public morals, of public wealth, and of public expedience. Some one has observed that mankind pay best 1st. those who murder and destroy them; warriors and heroes. 2nd. those who cheat them; statesmen and the priesthood; 3rd. those who amuse them; singers, actors, dancers, fidlers, [sic] etc. 4th. those who instruct them.... The priesthood, a class of men who cost us at this moment between 12 to 14,000,000 of dollars annually have contrived to persuade us that they are absolutely necessary to our welfare. I know not in what respect.[73]

Once in South Carolina, Cooper repudiated the French Revolution at least insofar as it was a threat to slavery, but he held fast to aggressive anticlericalism, which he reformulated in the language of English political economy. Although eloquent and learned, he self-righteously insisted that his students accept his dogmas. He insisted on trying to teach his students what to think rather than how to think. In 1823, the year he began giving America's first course in political economy, Cooper published a tract against the tariff, which he sent to every member of South Carolina's Congressional

delegation. In 1824, when most of South Carolina's politicians, including Calhoun, were still nationalists, Cooper published a widely reprinted tract called *Consolidation* in which he took an extreme prosouthern, antitariff position. In 1826, he published a volume of his lectures on political economy. He stressed the danger that the tariff posed to the South, and insisted that free trade and states rights were the only solutions. In the same year he published a tract, *On the Constitution*, in which he defended slavery and strict construction, as well as arguing that the Missouri Compromise was unconstitutional.[74]

Cooper wrote dozens of newspaper articles while he was publishing these books, but his most important contribution to secessionist politics came in a speech he gave in Columbia, on July 2, 1827. At an antitariff meeting run by members of the College faculty, Cooper declaimed that on account of the tariff,

> ...we shall be driven to adopt some decisive measure, when the power is gone from us. Wealth will be transferred to the North and wealth is power. Every year of submission rivets the chains upon us... before long we will have to calculate the value of our union.... The question is fast approaching the alternative of submission or separation.[75]

Unlike the constitutional cobweb spinning of Calhoun, Cooper's speech was radical talk about tangible realities, like wealth. An enormous controversy erupted in the wake of this speech, which was reprinted all over the country, and extensively cited in the Webster/Hayne debate.

It is remarkable that in 1827, before Nullification had even been invented, the president of South Carolina College was issuing invitations to the American Civil War. Less obvious, but perhaps more important in the long run, Cooper took the intellectual high ground. He and the ideologues on the faculty pioneered in problematizing and thematizing the relation between the South and the Federal government. This allowed them to formulate the terms of debate, and the dichotomy between "submission" and "separation" gained wide currency throughout South Carolina and eventually throughout the lower South. Taking the conceptual initiative gave secessionists, who were a radical minority, indispensable rhetorical leverage over the more conservative majority. Cooper wrote in 1829 that he expected that the tariff would cause South Carolina and Georgia to secede "...toward the end of 1830 [and that] ...I shall promote secession to the utmost of my powers."[76] Reflecting back upon this crisis in 1850, one of Cooper's former students candidly stated, "...only a few of the older Nullifiers regarded it as any more than a form of secession."[77] Cooper was consciously trying to create the politicians of the next generation. As he said in 1821 in an address to his first graduating class "...it is probable you will all become politicians of various grades."[78]

Three sets of student notebooks survive from this era, but none to Cooper's lectures. Only notes to Professor Robert Henry's class in metaphysics and moral philosophy survive in duplicate. These two notebooks, taken from lectures given three years apart, are verbatim identical.[79] This suggests that Professor Henry gave "canned" lectures. Henry, who was on the faculty from 1819 to 1856, informed his students that "...it is

absolutely necessary to keep the blacks in their present condition."[80] Moreover, both of the notebooks read like catechisms, with the notes dictated in a question and answer format for easier memorization. The notes from 1831 are indeed memorable:

> Q: Can any state be called disloyal which will [not] submit... to the usurped powers of Congress?
> A: No rather a friend of the Union.
> Q: What would you say of acts passed by Congress which transcend its powers?
> A: They are null and void...
> Q: What is necessary in order to be relieved of oppression?
> A: Unanimity of the oppressed.
> Q: What effect on the Union has the known right of secession?
> A: It strengthens rather than injures it.
> Q: What was the fault of the English with regard to her conduct toward us when colonies?
> A: She confided too much in her own strength and in the supposed ease with which she could intimidate us.
> Q: What was the consequence?
> A: Separation.
> Q: Will not the same causes produce the same effects now?
> A: Certainly.
> Q: Do you recollect what particular terms gave rise to the mistakes of the old royal and present federal government?
> A: Englishmen and Americans.
> Q: Can we be one people in interest and government?
> A: No, because experience shows we are not one people.[81]

The whole process of education pushed the students toward political extremism. One of Cooper's students recalled that he and his fellows went down the street to hear a political speech. The students "...left the hall detesting the tariff, and with the firm conviction that they would nullify or die."[82] Nationally known politicians attended mass Nullification meetings held on campus.[83] The Nullification Convention of 1832 was held just down the street from the College; nine of the most important members were Trustees; seven of these Trustees were alumni. The Nullification Convention as a whole was 39 percent alumni.[84]

The extremist political milieu permeating the College was described in 1834 by an English traveler, George Featherstonaugh. The Englishman had naively congratulated Cooper on the compromise which had narrowly averted civil war. Cooper

> rose from his easy chair, and...he seized the hearthbrush with eyes full of fire, and wielding the brush as if it were a broadsword denounced the compromise act as an ignoble

> measure he could never approve of; declared the Nullifiers had been quite in the wrong in making peace with the Union men...and that it would have been much better for them to have taken the field against General Jackson and all the force he could have brought against them. "We have lost a fine opportunity, sir, of bringing this statue into the highest renown." said this crooked little octogenarian [sic]; and then giving General Jackson a desperate cut with the hearthbrush, he went back to his easy chair again.[85]

The astonished Englishman wisely did not press the issue but noted in his journal that while he found Cooper's learning impressive, "...some of his screws were uncommonly loose...."[86] Featherstonaugh got a taste of the town's intellectual life at a dinner party the next evening. He wrote:

> Our party consisted of some gentleman of the place, Dr. Cooper, and a few professors belonging to the college.... What particularly struck me at this dinner was the total want of caution and reserve in the ultra opinions they expressed about religion and politics; on these topics their conversation was not at all addressed to me, but seemed to be a resumption of opinions they were accustomed to express whenever they met and upon all occasions. A stranger dropped in amongst them would hardly have supposed himself amongst Americans. It was quite new to me to hear men of the better class express themselves openly against a republican government and to listen to discussions of great ability, the object of which was to show that there can never be a good government if it is not administered by gentlemen.... Something very extravagant having been said, I asked if they called themselves Americans yet; the gentleman [replied].... "If you ask me if I am an American, my answer is No sir, I am a South Carolinian." If the children of these Nullifiers are brought up in the same opinions, which they are very likely to be, here are fine elements for future disunion, for imbibing from their infancy the notion that they are born to command, it will be intolerable to them to be, in their own estimation, the drudges of Northern manufacturers, who they despise as an inferior race of men.[87]

One of the gentlemen who had been at the dinner party met Featherstonaugh the next day. The Englishman had tactfully waited until he was about to leave Columbia before he ventured delicately to ask this unnamed gentleman about slavery.

> The line of argument he took up in answer to my observation was really very curious, and deserves to be recorded. He observed that the institution of slavery (so he dignified this bondage) was not understood outside of the southern states; that it elevated the character of the master, by comparison, made him jealous of his own, and the natural friend of public liberty; that the dignity of character which had belonged to southern gentlemen from Washington down to the present times was unknown to men of the northern states.... [The North lacked slavery,] and everybody knew that this generated a rapacious spirit, and made the accumulation of wealth the object of every man's life. This was not the case in South Carolina, where the planter, whatever might be his transactions, was careful not to encroach upon the character of a gentleman [he gave Calhoun as an example of a gentleman politician].... All these great principles of action, he said were developed and strengthened by the institution of slavery; that the slaves were not an unhappy race of men.... If there had been a necessity for it in the late dispute with the United States government the slaves would have shown to a man their well known fidelity to their masters.[88]

This gentleman was obviously a practiced speaker, and it is also obvious that his proslavery oration was not an improvisation. It is equally clear that the English visitor had hit a nerve with even the most tentative inquiry about the justice of slavery. Blown back by this gentleman's verbal hurricane, Featherstonaugh made no retort, but he was silently appalled by the content of the argument. He noted:

> I was struck with this justification of slavery, which, notwithstanding its excluding humanity, benevolence, and justice from the list of our duties to others would seem to qualify white men in a very high degree for the enjoyment of the compulsory labor of men of a different color. If it means anything it must mean that every man should be a slaveholder in order to [sic, ? foster] the successful development of his own inherent dignity.[89]

Evidence showing the influence of this radical milieu on the growth of proslavery, secessionist political opinions among the students can be found in the debates of the literary societies. The records of the debate societies are like a weekly opinion poll with questions chosen by students and answers in the form of votes by members. Prior to 1820, during the tenure of President Maxcy, the students were generally nationalistic.

In 1809, one society voted a unanimous affirmation to the question "Would it be disadvantageous to the country for the several states to become independent?"[90] Ironically, they adopted an even harder line in 1813 during the agitation for the Hartford Convention, affirming the proposition that "if one state of our union were to form a separate government, the rest [would] be justified in compelling it to reunite."[91] Moreover, they were sanguine about the nation's prospects, and in 1819 they affirmed that it was probable that the government of the U.S. would survive a century.[92]

Slavery was the one topic debated at least annually and by every class of students, and it appears that the politics and ethics of slaveholding was the most popular topic of undergraduate discussion. Under Maxcy, the Clariosophics debated questions concerning slavery at least nineteen times in the first fourteen years.[93] The most striking fact about their debates on slavery was the ambivalence and lack of unanimity among the auditors. Their uncertainty about slavery during the "Era of Good Feelings" paralleled the lack of clarity and consensus on the slave issue in American political culture as a whole. The students were intelligent young men who could not help but sense the conflicting tendencies within American political life and the tension between the political traditions of South Carolina and those of other states. On issues other than slavery, the trend of the students' thinking is reasonably clear, but their discussions of slavery, at least during the Maxcy years, were far more convoluted and contradictory.

In 1808, they decided that "the condition of African [was] meliorated by being brought to this country," while in 1810 they voted the reverse.[94] In 1809 they voted that the introduction of slavery had been disadvantageous to the state.[95] In 1816 they reversed themselves and voted that it had been advantageous.[96] In 1819 they had reconsidered the introduction of slavery and found it to be disadvantageous.[97] Nonetheless, in 1820 they voted that Congress should not prohibit slavery in the state of Missouri.[98] In 1818, the proposition, "Would a law prohibiting the introduction of slaves be politic, admitting it constitutional?"[99] was overwhelmingly rejected (24-2). However, in the same year, they resolved that "the colonization of slaves on the coast of Africa [would] be advantageous to America."[100] They agreed that simple justice required the manumission of slaves; on the other hand they voted that free negroes ought to be banished.[101] In 1819 they decided that it would be politic to address the grievances of a slave by law, but the next year they voted that slaves should not get an education.[102] The emancipation of the slaves was supported in 1812, but slavery was to be tolerated in 1813.[103]

One trend in the Clariosophics' debates on slavery is clear, however. At least five times in fourteen years human polygenesis (the theory that races are the products of separate creation, hence not members of the same species) was seriously entertained by the students. In 1806 the society debated the question, "Were all mankind descended from the same origin?"[104] The results of this debate were not recorded, but it is likely that the vote was in favor of polygenesis, because the next year, 1807, these same auditors rephrased the question to put the burden of proof on those who accepted polygenesis. This time the Clariosophics decided that they did not "have sufficient

reason to believe that all mankind [were] not descend[ed] from the same origin."[105] Although polygenesis continued to be a controversial subject, the preponderance of student opinion remained the same, and human beings were affirmed to be of the same species in 1816 and 1817.[106] Although a consensus of the undergraduates' opinions on slavery had not coalesced by 1820, it is noteworthy that the implied apologies for slavery contained within their topics for discussion (such as polygenesis) were all secular rather than theological in their orientation.

In some respects, the College debates can be seen as a reflection of public opinion in South Carolina. Between 1770 and 1820, there exists only evidence of secular defenses of slavery, founded on naturalistic or legalistic assumptions. Ministers were not held in especially high regard, and slavery was primarily defended by lawyers and politicians in terms of Constitutional law, natural law, the law of nations, economic necessity, climate, and superior resistance to disease.[107]

The evidence of student opinion from the two debate societies shows a clear movement away from the qualified nationalism of the Maxcy era toward the sectionalism of Cooper and the other members of the faculty, while at the same time their views on slavery hardened. In 1821, at the very beginning of Cooper's tenure in office, the Clariosophic society affirmed that the dissolution of the union was "probable."[108] The Clariosophics affirmed as early as 1822 the proposition that "the causes of discord growing out of the localities of the different states, together with those which arrive from the relation of the states and the general government, threaten the existence of the union."[109] Moreover, in 1826 the Clariosophics decided against the question "Should we send our youth to northern colleges for education?" So it appears that they understood that they were getting a "Southern" education.[110]

Between 1821 and 1835, the justice of slavery and the expediency of emancipation was debated by the two societies at least twenty times.[111] While the students harbored some misgivings about slavery prior to 1820, and their votes were roughly equally divided between pro and antislavery positions, during the Cooper era, the students voted that slavery was justifiable and that emancipation was undesirable at least fifteen times out of twenty. Some traces of antislavery sentiment can be found in the debate society records, but these traces became fainter and more attenuated over time.[112]

Nullification and the tariff were debated at least fifteen times during the Cooper era, and both societies were heavily in favor of the Nullifiers.[113] In the wake of the "calculate the value of the Union" speech, the Clariosophic society debated the question, "Was Dr. Cooper justified in using the language he did in protesting against the Woolens Bill?" They affirmed that he was. The Euphradians believed that they had "as good reason to resist the tariff of 1828 as our forefathers had to resist the tax on tea."[114] In his tract *Consolidation*, Cooper had argued that secession might be the only just response to federal encroachment. Given the choice, the Euphradians thought it better to nullify than to secede.[115] The Clariosophics, on the other hand, saw a different set of alternatives. They debated the proposition, "Which is preferable to the United States: consolidation or disunion?" Like Cooper, they chose disunion.[116]

It is not surprising that disunion and secession, which were not controversial issues during the Maxcy era, became controversial under Cooper. The students spent a considerable amount of time calculating the value of the union. During the Cooper years disunion was debated at least a dozen times by the two societies.[117] Although both societies had misgivings about disunion (the Clariosophics, in particular, voted against secession in 1828, 1829, and 1830), they generally agreed that at least in some circumstances, the tariff could "justify a rebellion."[118] The young men who repeatedly considered the option of secession in the 1820s turned out later to be exactly what Featherstonaugh predicted, "fine elements for future disunion."

The later political thought and action of the alumni closely paralleled their education at the College. Within the state legislature, the alumni formed a particularly formidable voting bloc because the state had no organized political parties, and opposition was disorganized. The alumni were conspicuous for their support of each other and their support of the College, and through them the College wielded enormous influence on politics.[119] They often selected alumni to serve as Governor or Senator or Presidential Elector or state Judge. The alumni in the legislature influenced legislation, policy, and patronage by controlling the Speakership of the House and thus Committee assignments. Between 1824 and 1860, the Speaker was an alumnus for all but six years.[120]

To a great extent the College took up the institutional "slack" left by the absence of a political party system.[121] The papers of Congressman, Governor, and Senator James Henry Hammond reveal the subtle sounding of collegiate acquaintances and careful planning with collegiate friends to secure the endorsement of local notables so important to election.[122] The pattern of officeholding in South Carolina through the Civil War suggests what contemporaries generally knew; the College was the intellectual and political crucible for South Carolina's elite. Between 1824 and 1865, twelve of South Carolina's twenty-one governors were alumni. After 1865, alumni were elected Governor five more times. Between 1830 and the death of Calhoun in 1850, one of South Carolina's senators was an alumnus; thereafter, one or more were. Between 1820 and 1860, at least a quarter of the members of the lower house were alumni, and an average of 32.5 percent of the lower house was composed of alumni.[123]

While most were agreed that the College had been a politically unifying force, the exclusivity of the College and the hauteur of alumni were often criticized by the unannointed. One member of the state legislature, whose proposals for the reform of primary and secondary school education had been thwarted by a voting bloc of alumni, stated bluntly:

> The College—the S.C. College—governs the state. Its Trustees are the Governor—the Judges—the Chancellors—the president of the Senate—the Speaker of the House—the Chairmen of certain Committees—distinguished and ex-distinguished personages of the land. Legislators talk of *the* College with undisguised scorn for all other pretenders to the name of College in the State, and most of those out of it.[124]

In a letter to a Columbia newspaper, another writer complained of the elitism of gentlemen who looked "upon those educated at South Carolina College as *alone* fit to fill the offices and control the destinies of the state."[125]

The alumni of South Carolina College constituted a privileged elite who had all of the advantages of wealth and education that the South could offer. They spoke a common political idiom, and they shared a consensus about the ends of public policy if not the means. It was noted by a writer in the *Charleston Mercury*,

> If the College goes [say] farewell to the unity of sentiment which has made South Carolina, small as she is, the centre and rallying point of states' rights resistance; as Massachusetts has been, owing to the influence of Harvard, of the antagonistic principles of encroaching federal power. It is the educated intellect and the trained and developed morale of the state which gives it tone, character and direction.[126]

The "tone" taken by alumni was deeply influenced by the "tone" of their teachers. The alumni who matriculated under Maxcy, while predisposed toward slavery and the interests of the south, showed some diversity of political beliefs.[127] Since the alumni were an economic as well as an intellectual elite, and rich men make unlikely revolutionaries, a substantial minority became conservative Unionists opposed to Nullification. Most of the Maxcy era alumni whose political views are known did support Nullification. Five of these nullifiers eventually represented South Carolina in the Senate, nine in the House, and four were elected Governor. Most of these early alumni were dead or retired by 1860, but of those who were still active all except one were disunionists.

There are many possible indices for the influence of Cooper upon his students. One graduate of the class of 1831, William Boykin, named his son Thomas Cooper Boykin. Another former student, Nathaniel Gist, named his son not after Cooper, but after his political principles. The boy, who came from a prominent family and was himself graduated from the College in the class of 1850, could hardly avoid becoming a Confederate General with a name like "States Rights" Gist. The ultra views of Chancellor George Dargan ('23), who eventually became an ex officio member of the Board of Trustees, also seem to have been influenced by the beliefs he was exposed to in the College lectures. An associate recalled that,

> He was a most devoted states rights man, nullifier, secessionist and disunionist.... [H]is boast for many years was that he had never been beyond the limits of South Carolina, and hoped never to be under the necessity of going out of the state.... [H]e regarded South Carolina as his country, his whole country, and all beyond her limits as aliens and foreigners! He was devoted to

> the state and the State alone, her honor and her glory. He once said to me."You old fogies may be Union men, and glorify the Union, because you have been educated and brought up in that school, but the rising generation will scorn that Union and sever it into fragments. Mark what I tell you."[128]

The "rising generation" represented by the prescient Dargan did sever the Union into fragments, and this was at least partially caused by a faculty that "educated and brought up" South Carolina College students in a different "school" from that of the "Union men."

With a few exceptions, the Cooper alumni were too young to take much of a part in nullification, however by 1860, they were the elder statesmen of South Carolina, and they were overwhelmingly secessionists. All of South Carolina's governors between 1858 and 1865 were Cooper's students, as were eleven of South Carolina's Congressmen. Most importantly, South Carolina's Secession Convention was composed of 44 percent alumni, and the majority of them were Cooper's students. One alumnus noted that,

> More than a quarter century after Cooper's retirement from the College, Langdon Cheves [a member of the Secession convention]... so prominent in civic and military life, late in 1860, when the question of secession was [considered]...spoke not of his illustrious father, nor Calhoun, nor Hayne, but referred to and cited the words of Dr. Cooper as having first given bent to his thought which assured him of the soundness of his political views....[129]

The fact that the College was the single most important influence on the politics of South Carolina's antebellum elite was common knowledge to contemporaries. One observer noted, "the South Carolina College has done more to make us one homogeneous people than all other influences combined."[130] An early alumnus stated, "the great merit of South Carolina College is that it tended to make the state one people."[131] Another alumnus stated that, "from its commencement, the College has become to a large extent the center, not only of education, but of political thought in the state, and is doubtless the institution which has done the most to mold and influence the character of the people of the state."[132]

South Carolina College also exerted a powerful influence on the newly admitted states of the deep South. In 1851, Oscar Lieber ('49) wrote to his father (a professor at the College) while traveling in Alabama.

> Our College certainly holds the highest position among southern institutions of the kind and most men who graduate are

> above the average intellect of the country...they spread over the whole broad acres of the South and yet whenever you meet a graduate of our College, you can be sure, yes 50 to 1 that he is strong in his political faith and that that faith is of the right sort. It would be interesting if it could be ascertained, for instance, what number of her alumni were Know Nothings. I feel confident not more than 5% were of that party and not more than 20% were indifferent. So regular is this similarity of opinion that a priori I should never hesitate to speak to them, but as if they had already expressed it.[133]

Between 1830 and 1860, South Carolina led all states in the union in percentage of outmigrant population.[134] Almost half of the alumni left the state, and nearly all went to the lower South. In the process, these ministers, doctors, editors, and lawyers contributed to the development of a new political elite in these new plantation societies. As one alumnus remarked,

> The ideas instilled, the doctrines inculcated, the influence exerted by the College, were disseminated throughout the whole southern and southwestern country, not only by the students from these other states, but by the great numbers of native South Carolinian students, who, after graduation, emigrated there.[135]

College alumni served as antebellum Governors of Georgia, Florida, Alabama and Mississippi. More than a dozen alumni were sent to Congress from Georgia, Alabama, Mississippi, Louisiana, and Texas. When South Carolina seceded in December, 1860, Mississippi, Florida, Alabama, Georgia, Louisiana, and Texas joined the state in a little more than a month. Alumni were in every one of these secession conventions. As one alumnus noted,

> To the College is very largely attributable the influence which has not only made South Carolina the prompt and determined champion of Southern rights and interests, especially state sovereignty, free trade, and the institution of domestic African slavery, but which has also deeply impressed the doctrines entertained, by South Carolina, on those subjects on the heart and mind of the entire South and Southwest. So great has been this influence as to give it historical significance.[136]

NOTES

[1] This essay was made possible with the assistance of the Huntington Library, San Marino, California.

[2] In 1803 Drayton wrote a defense of slavery, the first produced by a sitting governor in the U.S. See Larry Tise, *Proslavery* (University of Georgia Press, 1987), 38. See also Henry Adams, *History of the United States During the Administration of Jefferson and Madison* (New York: Library of America, 1986), 104.

[3] John Drayton to the General Assembly, 23 Nov. 1801, Governors Messages, Legislative System, 1800-1830, SCDAH, Columbia.

[4] John Belton O'Neall, *Biographical Sketches of the Bench and Bar of South Carolina*, vol. 1 (Charleston: S. G. Courtney & Co., 1859), 245.

[5] "Phocion" (Henry William DeSaussure), *Letters on the Questions of the Justice and Expediency of Going Into Alterations of Representation in the Legislature of South Carolina As Fixed By the Constitution* (Charleston, 1795), 8-9.

[6] William Harper, *Memoir of the Life Character and Services of the Late Hon. Henry William DeSaussure* (Charleston: W. Riley, 1841), 23. Other contemporaries also noted the resistance of the upcountry to the proposed College. See John Belton O'Neall, *An Oration Delivered to the Clariosophic Society Incorporate and the Inhabitants of Columbia, on the Anniversary of the Society, December 5, 1826* (Charleston: A.E. Miller, 1827), 12-13.

[7] The term "alumnus/i" will be used in the extended sense to refer to all those who matriculated at the College, not just those who graduated. The number after the name of alumni, indicates year of graduation/withdrawal from the college.

[8] *Semicentennial Celebration of the South Carolina College; Consisting of the Baccalaureate Address, by the President of the College, the Semicentennial Oration by the Honorable Jas. L. Petigru, and the Answers to Letters of Invitation* (Charleston: Walker and Evans, 1855), 13.

[9] *Annals of Congress*, First Congress, Second Session, Feb. 1790, 1198.

[10] Henry William DeSaussure to Ezekiel Pickens, 27 Oct. 1805, Henry W. DeSaussure Papers, South Caroliniana Library (hereafter SCL), Columbia.

[11] The total number of matriculants is unknown. In the first years of the 20th century, a professor at the University of South Carolina, Andrew C. Moore, gathered an extraordinary cache of evidence on all alumni of South Carolina College (later the University of South Carolina). Moore sent out detailed questionnaires to alumni and their children asking for details on alumni: parents, place and date of birth and death, marriage, wife, and children, pre- and post-collegiate schooling, debate society and whether a graduate, publications, military service, profession, political officeholding, etc. Although the information he got was often incomplete, Moore turned the questionnaires (which number in the thousands) into brief biographical sketches. He apparently intended to write a book but died before doing so. He published only a list of the alumni, which he admitted to be incomplete: A.C. Moore, *Roll of Students of South Carolina College, 1805-1905* (n.p., 1908). The background data on individuals is fragmentary, so statistical analysis would entail excessively large margins of error, plus unquantifiable biases, while suggesting a degree of precision that is misleading. For the purpose of

generalizing about the alumni, the original questionnaires, which are on file at McKissick Museum, USC, were supplemented with other archival and bibliographical sources. This will hereafter be cited as *Moore Records*.

[12] Charleston, *Mercury*, 5 Jan. 1836.

[13] J. Wayles Baker to William F. Colcock, 8 June 1853. Colcock Family Papers, Howard-Tilton Memorial Library, Tulane University. In this letter, Baker mentions several mutual friends and classmates who had moved to Florida, including John C. McGeehee, later president of the Florida Secession Convention. On the outside envelope is the note, "July 7, 1853 J Wayles Baker my old class mate in the So Ca College He is an A No 1 Fellow."

[14] James Dellett to Joseph B. Earle, 29 May 1833. Dellett Papers, ADAH, Montgomery.

[15] "Incognito," Tallahassee, *Floridian and Journal*, 8 Dec. 1860.

[16] Henry L. Pinckney, *The Necessity of Popular Enlightenment to the Honor and Welfare of the State* (Columbia, 1845), 28.

[17] Edwin L. Greene, *A History of the University of South Carolina* (Columbia: The State Company, 1916), 68-78.

[18] Hutson, "South Carolina College in the 1850s," *Sewannee Review* 18 (July 1910): 341.

[19] Charles Woodward Hutson to "Dear Father," 17 Feb. 1857, Charles W. Hutson Papers, SCL, Columbia.

[20] Quoted in Hollis, *South Carolina College*, 230.

[21] Those who listened to South Carolinian orators for a period of time discerned a stylistic similarity. John Quincy Adams was tactful enough to relegate his caustic disapproval to his diary. He described alumnus Francis W. Pickens as "a coarse sample of the South Carolina School of orator statesmen—pompous, flashy, and shallow." Charles Francis Adams, ed., *Memoirs of John Quincy Adams, Comprising Portions of his Diary from 1795 to 1848*, vol. 9 (Philadelphia, 1874-1877), 398.

[22] William H. Russell, *My Diary North and South; The Civil War* ([1863] New York, Harper & Brothers, 1954), 62.

[23] James Henly Thornwell, *Letter to His Excellency Governor Manning on Public Instruction in South Carolina* (R.W. Gibbes & Co., 1853), 26.

[24] John Creighton McMaster, Notebooks 1834, SCL, Columbia.

[25] William Paley, *Principles of Moral and Political Philosophy*, rev. ed. (Boston, 1845), was the required text which covered these issues.

[26] John Creighton McMaster, Notebook 1834, SCL, Columbia.

[27] Chalmers Davidson, *The Last Foray, The South Carolina Planters of 1860* (Columbia: University of South Carolina Press, 1971), 21.

[28] Senators and Governors of Florida, Georgia, Mississippi, Alabama, and Virginia sent their sons to South Carolina College.

[29] George Blackburn, *Narrative of The Transactions at South Carolina College During the Last Three Courses* (n.p., n.d., c. 1814), 60.

[10] There were of course a prominent exceptions to this rule, but the exceptional abilities of the poor scholars who became College graduates made them seem more numerous than they really were. Joshua Hudson, who graduated first in the class of 1852, was one of the "poor scholars" who made good. See Joshua Hudson, *Sketches and Reminiscences* (Columbia: The State Company, 1903), 19-23.

[11] "Chester" letter, *Columbia Southern Chronicle*, 7 Dec. 1842.

[12] The *Moore Records* suggest that roughly the wealthiest one thousand families in the state formed an exceedingly complex reticulation of family connections. Many of those who lived long lives were widowed and remarried once or twice, which helped multiply the connections. Preston Brooks married Caroline Harper Means. After his first wife died, he married her cousin, Martha C. Means. Similarly, John Gist married (serially) two sisters, the Misses Foote. Among the South Carolinian gentry, a son's middle name often was the mothers maiden name, which meant that his pedigree got maximum publicity. When Charles Allison Sparks married Julia Allison, the identity of the bride's last name and the groom's middle name was the tipoff to first cousin marriage, which was quite common. This naming system has its difficulties, however. Alumnus George Washington Taylor's parents, Thomas Taylor and Mary Taylor, were first cousins. George himself married his first cousin, Fanny Taylor, and although they doubtless had a very close family, they must have given their children different middle and last names. The frequency of first cousin marriages among the gentry was a source of concern. See Colonel Irby's anxieties in O'Neall, *Bench and Bar*, 117.

[13] William J. Grayson, "The Character of a Gentleman," *Southern Quarterly Review* (Jan. 1853): 69.

[14] Reminiscing about Maxcy, William Grayson stated that, "he professed a control over the hearts and minds of his pupils that no one of his successors has equalled or approached.... His eloquence was irresistible. No youth however rough his training could withstand its power." Robert D. Bass, "The Autobiography of William Grayson," Ph.D. diss., George Peabody College for Teachers, 1931, 85. [Hereafter Grayson, *Autobiography*.]

[15] The records for the students' misconduct, the *Minutes of the Trustees of the South Carolina College [TM]* and the *Minutes of the Faculty of South Carolina College [FM]* (original volumes in McKissick Museum, University of South Carolina, Columbia), are not complete. At some earlier time, these documents were tampered with. Sections of both were excised with a sharp, razor-like instrument. The missing pages do not comprise a substantial amount of the documents, but they probably contained some exceptional data. Some of the Record Books for the Clariosophic and Euphradian Society are lost as well. *TM*, 21 April 1813.

[16] Grayson, *Autobiography*, 86.

[17] E. Merton Coulter, *College Life in the Old South* (New York: The Macmillan Co., 1928), passim. See also John Hope Franklin, *The Militant South* (Cambridge: Harvard University Press, 1956), 134.

[18] This was not the case at the University of Alabama, for example. Cheating was common and the sense of honor was not as strict as at South Carolina College. See James B. Sellers, *History of the University of Alabama* (Birmingham: University of Alabama Press, 1953), 215.

[19] James H. Carlisle, "College Reminiscences," *Centennial Celebration of the Granting of the Charter to the South Carolina College* (Columbia: The Lucas Richardson Co., 1901), 33.

[40] *Minutes of the Clariosophic Society of South Carolina College [CM]*, 20 May 1820, John Chambers was the thief. Original volumes in McKissick Museum, University of South Carolina, Columbia.

[41] Perry, *Reminiscences*, 128.

[42] Perry, *Reminiscences*, 128.

[43] George McDuffie was the best example of a young alumnus who fought a highly publicized duel in the process of beginning a political career, but there were dozens of similar examples. See Edwin L. Green, *George McDuffie* (Columbia: The State Company, 1936), 34.

[44] Maximilian LaBorde, *The History of the South Carolina College From its Incorporation, Dec. 19, 1801 to Dec. 19, 1865; Including Sketches of its Presidents and Professors, With An Appendix* (Charleston: Walker, Evans & Cogswell Co., 1874), 174.

[45] Paley, *Principles of Moral and Political Philosophy* (Boston, 1827), 108. The undergraduates who studied this text were deeply influenced by the standards contained in it. William J. Grayson, writing some forty years after his graduation, cited Paley's book in an essay he wrote on, "The Character of the Gentleman," *SQR* (Jan. 1853): 59.

[46] William Ellet, Secretary of the Faculty, to Trustees, 27 Nov. 1839, *Miscellaneous Trustees Records*, McKissick Museum, University of South Carolina, Columbia.

[47] Lieber Diary, 14 Feb. 1838, in Perry, *Francis Lieber* (Boston: James R. Osgood and Co., 1882), 26.

[48] Quoted in C. W. Lord, "Young Louis Wigfall, South Carolina Politician and Duelist," *SCHM* 59, no. 1 (Jan. 1958): 106.

[49] Alvy King, *Louis T. Wigfall; Southern Fire Eater* (Baton Rouge: Louisiana State University Press, 1970), chap. 1.

[50] William Campbell Preston to Louis T. Wigfall, 19 Jan. 1860, Wigfall Papers, Library of Congress.

[51] Bruce D. Dickson, *Violence and Culture in the Antebellum South* (Austin: University of Texas Press, 1979), chap. 1 and passim.

[52] Joseph H. Dargan to William Harper and the Board of Trustees, 2 Dec. 1834, Thomas Cooper Papers, SCL, Columbia.

[53] Marion Sims, *The Story of My Life* (New York, 1884), 88-89.

[54] Thomas Palmer to Harriet Palmer, 9 May 1822, Palmer Family Papers, SCL, Columbia.

[55] Bertram Wyatt-Brown, *Southern Honor: Ethics and Behavior in the Old South* (New York: Oxford University Press, 1984), passim.

[56] Sims, *The Story of My Life*, 101-102.

[57] James Hervey Witherspoon's dignified bearing served him well in political life. He represented South Carolina in the Confederate Congress. See Warner and Buck, *Biographical Register of the Confederate Congress*, 113.

[58] Sims, *The Story of My Life*, 88.

[59] Greenberg, *Masters and Statesmen*, 23-41, and Wilson, *The Code of Honor*, passim.

[60] Sims, *The Story of My Life*, 92.

[61] Max Weber, *Economy and Society*, eds. Roth and Wittlich, vol. 1 (New York: The Free Press, 1961), 241-246.

[62] William Campbell Preston to Col. Cunningham, 11 Feb. 1833, William C. Preston Papers, SCL, Columbia.

[63] Green, *George McDuffie*, 33-36.

[64] *Charleston Mercury*, 23 July 1823.

[65] William Freehling, *The Road to Disunion* (New York, Oxford University Press, 1990), chaps. 4-8 shows in great detail the connection between Cooper, James Henry Hammond, and other alumni (such as Pinckney and Davis) in treating the Gag Rule as a catalyst for secession.

[66] See the articles signed "T.C." in the Philadelphia *Democratic Press*, 19 Dec 1819, 6 Jan. 1820.

[67] Maximilian LaBorde, *History of South Carolina College* (Charleston: Walker, Evans and Cogswell, 1874), 172.

[68] Cooper, *Defence*, 7. Cooper liked to strike the pose of a consistent advocate of free speech and thought, but this was more a convenient ploy than disinterested principle. In 1837, when the international copyright bill came before Congress, Cooper wrote to Congressman Francis Elmore, "... take care that no clause is insidiously introduced to compel the South under law to admit abolition books." (Cooper to Francis Elmore, 3 May 1837, Cooper Papers, SCL.) Freedom of expression was not for abolitionists, it was for Nullifiers. The year after his acquittal, his supporters would demonstrate their regard for freedom of expression and thought by requiring the "Test Oath."

[69] Thomas Cooper to David McCord, 16 July 1828, Thomas Cooper Papers, SCL, Columbia.

[70] Thomas Cooper, *To Any Member of Congress from a Layman* (Columbia, 1831), 9.

[71] *Camden Journal*, 17 Dec. 1831.

[72] William Brearly to Rev. John McLean, 22 Nov. 1822, William Brearly Papers, SCL, Columbia.

[73] Thomas Cooper, *Lectures on the Elements of Political Economy*, 2nd. ed. (Columbia, 1829), 118.

[74] Dumas Malone, *The Public Life of Thomas Cooper* (New Haven: Yale University Press, 1926), 282-290 and passim.

[75] Columbia *Telescope*, 6 July 1827.

[76] Thomas Cooper to Joseph Parker, 21 Feb. 1829, Thomas Cooper Papers, SCL.

[77] Cited in William Freehling, *Prelude to Civil War* (Harper and Row, 1965), 206. The speaker was James Henry Hammond.

[78] Thomas Cooper, *Address to the Graduates of the South Carolina College of 1820* (Columbia, 1821), 2. Cooper said much the same thing in his *Address to the Graduates of the South Carolina College of 1830* (Columbia, 1831), 6.

[79] Gage, McMaster, and Witherspoon Notebooks, SCL, Columbia.

[80] McMaster Notebook. Henry was absent from the faculty 1834-1842. He also taught other classes in addition to moral philosophy.

[81] McMaster Notebook, SCL, Columbia.

[82] Cited in Daniel Hollis, *History of South Carolina College* (Columbia: University of South Carolina Press, 1951), 262. The speaker, James Thornwell, was referring to the noted orator, William Campbell Preston. Both were alumni and both became presidents of the College.

[83] *Charleston Mercury*, 14 Aug. 1832.

[84] Moore Records.

[85] G.W. Featherstonaugh, *Excursions Through the Slave States* (London, 1844), 157.

[86] Featherstonaugh, *Excursions*, 156.

[87] Featherstonaugh, *Excursions*, 157-158.

[88] Featherstonaugh, *Excursions*, 158.

[89] Featherstonaugh, *Excursions*, 158.

[90] Minutes of the Clariosophic Society (*CM*), SCL, 4 May 1809.

[91] *CM*, 27 Feb. 1813.

[92] *CM*, 12 June 1819.

[93] *CM*, 7 June 1806; 7 June 1807; 26 March 1808; 30 April 1808; 3 June 1809; 24 Nov. 1810; 6 March 1813; 20 May 1815; 26 April 1816; 27 Dec. 1817; 31 Jan. 1818; 22 Nov. 1818; 27 Feb. 1819; 3 April 1819; 22 Jan. 1820; 29 Jan. 1820; 18 March 1820. It must be remembered that this represents only one of the two debate societies. Slavery was probably debated just as often in the Euphradian society, whose minutes are lost for the Maxcy years.

[94] *CM*, 26 March 1808; 24 Nov. 1810.

[95] *CM*, 3 June 1809.

[96] *CM*, 27 April 1816.

[97] *CM*, 3 April 1819.

[98] *CM*, 29 Jan. 1820.

[99] *CM*, 22 Nov. 1818.

[100] *CM*, 31 Jan. 1818.

[101] *CM*, 25 Feb. 1809; 19 Feb. 1820.

[102] *CM*, 27 Feb. 1819; 18 March 1820.

[103] *CM*, 12 March 1812; 6 March 1813.

[104] *CM*, 7 June 1806.

[105] *CM*, 7 June 1807. See also *CM*, 30 Jan. 1808.

[106] *CM*, 26 Oct. 1816; 27 Dec. 1817.

[107] See, for example, William Johnson, *Nugae Georgae, An Essay Delivered to the Literary and Philosophical Society of Charleston, South Carolina, October 14, 1815* (Charleston: J. Hoff, 1815), 33-34.

[108] *CM*, 13 Jan. 1821.

[109] *CM*, 2 Mar. 1822.

[110] *CM*, 18 Mar. 1826. Similar sentiments were expressed 22 Nov. 1828.

[111] *Minutes of The Euphradian Society* (hereafter *EM*), 8 May 1824; 16 April 1825; 25 Mar. 1826; 20 Oct. 1827; 29 Dec. 1827; 26 Jan. 1829; 20 Feb. 1830; 20 March 1830; 22 Oct. 1831; 28 April 1832; 16 May 1835. *CM*, 24 Nov. 1821; 27 March 1824; 1 April 1826; 9 Dec. 1826; 31 March 31, 1827; 27 Oct. 1827; 7 March 1828; 13 March 1830; 26 March 1831.

[112] The hardening of opinion on slavery is clearly evident in the career of Basil Manly. In April of 1821, Manly wrote a speech for the Euphradian society called "On the Emancipation of Slaves" (Basil Manly Papers, SCL). In this speech, Manly argued that slavery was a particularly dangerous issue because it contributed to the growth of antagonistic parties, and the only way to avoid bitter factional disputes on this issue was to abolish slavery and colonize the freedmen, who were assumed to be dangerous to whites. Manly graduated, moved to Alabama, and gave up his antislavery views. He became the first president of the University of Alabama and one of the most prominent proslavery apologists. He was instrumental in dividing the Southern Baptist Church from the Northern, due to a controversy in 1844 over the ethics of slaveholding. He said a prayer at the opening of the Alabama Secession Convention, and shortly after wrote his son, "Thus you see, I have had a great deal to do with the whole thing. It was I who took the steps and wrote the Alabama Resolutions in '44 which separated the Denomination. This was the *entering wedge, driven far in*." Basil Manly Sr. to Basil Manly, Jr., 10 Feb. 1861. Basil Manly Papers, University of Alabama, Tuscaloosa, Box 1, Folder 13.

[113] *EM*, 12 March 1825; 22 Nov. 1828; 28 Dec. 1828; 23 Jan. 1830; 8 May 1830; 29 Oct. 1831; 3 Nov. 1831; 17 March 1832; 6 April 1833. *CM*, 4 Nov. 1826; 27 Oct. 1827; 22 Jan. 1828; 1 Nov. 1828; 6 Nov. 1830.

[114] *EM*, 8 May 1830.

[115] *EM*, 17 March 1832.

[116] *CM*, 13 March 1830.

[117] *EM*, 12 March 1825; 30 Jan. 1830; 5 Feb. 1830; 5 March 1831; 26 Jan. 1833; 22 Nov. 1834. *CM*, 13 Jan. 1821; 2 March 1822; 21 Jan. 1826; 8 Nov. 1828; 21 Nov. 1829; 13 March 1930; 9 Oct. 1830.

[118] *EM*, 12 March 1825.

[119] Notebook, SCL Columbia containing undated (c. 1857) clippings from the newspaper controversy between "Viator" and J. Stobo Farrow. Hereafter "Viator Notebook."

[120] Colyer Meriwether, *The History of Higher Education in South Carolina with a Sketch of the Free School System*, Bureau of Education Circular of Information, no. 3 (Washington: Government Printing Office, 1888), 209-210.

[121] This is a part of the solution to the problem of antebellum South Carolina's anomalous political thought and institutions. James Banner, "The Problem of South Carolina," in Elkins and McKitrick, eds. *The Hofstadter Aegis; A Memorial* (New York: Alfred Knopf, 1974), 60-93.

[122] There are hundreds of such letters in the papers of James Henry Hammond, clustered around the years of his greatest political aspiration, particularly 1839-40, when he ran for governor.

[123] Within the state legislature, the alumni formed a voting bloc which became particularly formidable because the state had no organized political parties, and opposition was disorganized. The alumni were conspicuous for their support of each other and their support of the College, and, through them, the College wielded enormous influence on politics. They often selected alumni to serve as Governor or Senator or Presidential Elector or state Judge. The alumni in the legislature influenced legislation, policy, and patronage by controlling the Speakership of the House and, thus, Committee assignments. Between 1824 and 1860, the Speaker was an alumnus every year except six.

[124] Viator Notebook, SCL, Columbia.

[125] "Chester" letter to *Columbia Southern Chronicle*, 7 Dec. 1842.

[126] Quoted in the *Columbia Daily South Carolinian*, 8 Sept. 1857.

[127] One obscure alumnus, James Hibben, freed his slaves, possibly for religious reasons. One or two others may have done the same, but such behavior was rare for any reason.

[128] Perry, *Reminiscences*, 63.

[129] Leroy Youmans, "The Historical Significance of South Carolina College," *Proceedings of the Centennial Celebration of South Carolina College* (Columbia: The State Company, 1905), 162. Cheves was in good company. Jefferson Davis acknowledged his debt to Cooper's writings in a speech given at Charleston in 1863.

[130] Joseph Daniel Pope, *The State and the College* (Columbia: Presbyterian Publishing House, 1892), 18.

[131] Grayson, *Autobiography*, 86.

[132] Youmans, "Historical Significance," 37.

[133] Oscar Lieber-Francis and Matilda Lieber, n.d. 1851, Lieber Papers, Huntington Library, San Marino, California.

[134] Tommy Rogers, The Great Population Exodus from South Carolina, 1850-60," *South Carolina Historical Magazine* (Jan. 1967), 14-22.

[135] Youmans, "Historical Significance," 159.

[136] Youmans, "Historical Significance," 161-162.

Bringing Science to the South: The School for the Application of Science to the Arts of the University of North Carolina

THOMAS KEVIN B. CHERRY

Following the 1851 commencement at the University of North Carolina, an unlikely tour group left Chapel Hill for the Northeast. Participants included Benjamin Hedrick, a first-honor graduate of that year and a noted student mathematician; Kemp Battle ('49), mathematics tutor and also a UNC honor man; and Charles Phillips ('41), yet another first-honor graduate of Carolina. Battle at that time planned to be an engineer, but would one day lead the University as its president.[1] Even though he had studied to be a physician, then a minister, Phillips, too, would spend most of his life in Carolina classrooms. Hedrick, the youngest of the three, would return to his alma mater as an instructor for a brief stint in the 1850s, before returning to the North and government work. Leading these three young men (along with two others, whose identities are unknown) was Phillips's father, the somewhat unpopular mathematics professor at the University, James Phillips.[2] The impetus for this northern excursion was the elder Phillips's appointment as a Visitor at West Point and Hedrick's placement in the *Nautical Almanac* office in Cambridge. It was decided that, following Professor Phillips's duties at the Military Academy, this small group would explore the North.[3]

Making New York City their temporary headquarters, this entourage of somewhat provincial academicians visited West Point, Albany, Troy, Saratoga, Schenectady, Manchester, Niagara Falls, Montreal, Boston, and Cambridge.[4] While they indulged in some typical "tourist" activities (Battle was captivated by Jenny Lind and disappointed by the first performance of Shakespeare he had ever seen), most of the sights these travelers visited would not crowd the average out-of-towner's itinerary. In Albany, they visited the state geological rooms, where they inspected case after glass case filled with insects, stuffed animals, and "every kind of duck in the world," or, as Battle reported to his younger brothers and sisters, "all things, in short, that are found in the state of New York."[5] In Troy, the Chapel Hillians visited a stove factory and, "after being perfectly nauseated with stoves," went to a planing and sawing shop, where Battle reported "my wonder was enormous." They also visited a steamboiler "manufactory" and the United States arsenal in West Troy, where the authorities demonstrated all the operations for mounting guns. The firing of cannon gave way to the ringing of bells as Battle, both Phillipses, Hedrick, and their two friends went to a bell foundry, where they "learned how to make bells." Later, they were shown the method of constructing mathematical instruments, visited yet another planing mill, and inspected a nail factory ("the most wonderful thing we came across"), as well as a shop that made teapots and candle sticks.

In Schenectady, the North Carolinians visited Union College, an institution that had for years been following a partial course "electives" program designed by its "science-minded president, Eliphalet Nott."[6] Further west, the professor and tutors inspected the suspension bridge at Niagara Falls (with Battle marveling that "the bridge has a waving motion up and down and it feels a little ticklish"[7]), and, in a Brooklyn glass factory, the group "had the pleasure of blowing up a red hot ball of glass till it was as large as [Battle's] head."[8]

In Massachusetts, they met the leading scientists of the day: Benjamin Peirce, Charles H. Davis, and Professor Eben Horsford,[9] visited naval yards and Boston's Athenaeum (which was under construction); in addition, they saw "some fine print works, woolen works, and engine making," as well as the operations of a carpet manufactory.[10]

This tour was more than a strange summer vacation, and the small group of scholars more than a collection of tourists. With the exception of noted Professor of Chemistry, Mineralogy, and Geology Elisha Mitchell, the group included the University of North Carolina's entire science faculty and the University's most promising recent graduate (Hedrick), who was just beginning a period of employment at one of the nation's top scientific enterprises, the *Nautical Almanac*.

The trip that these men had undertaken was an intensive, summer-long excursion into industrial and scientific America. West Point, where Battle climbed up onto a high ridge to write his sister a long report of his activities, was the top engineering school in the nation. Albany, where the men had wandered through the cluttered rooms of specimens, was the home of the most thorough state geological survey in the United States. Cambridge, where these Carolinians spent considerable time—and where they left behind one of their number—was the seat of theoretical science in the country. It was also the site of the most extensive federally supported scientific undertaking of the day (the *Nautical Almanac*). These were among the most important centers of contemporary American science.

In addition to direct contact with scientific America, these men had also visited the heart of American industry. Coming from one of the least industrial states in the union, it is no wonder that they were amazed at the processes of nail-making and lumber-planing. Without a doubt, they were all aware of North Carolina's poverty and lack of economic development, and it is easy to believe that they dreamed of someday bringing such industrial processes back home to aid their native state. On this summer-long field trip, these UNC scholars sought to add the industrial to the scientific. They were obviously looking to wed the science of their books to the products of the factory in order to turn around their backward state, which had already earned the nickname "Old Rip" for slumbering while the rest of nation rushed ahead. Within a year, members of this academic group would take the next step toward bettering the prospects of their fellow North Carolinians by creating in Chapel Hill the School for the Application of Science to the Arts.[11]

It is the intention of this paper to briefly illustrate the string of failed forerunners that preceded the two major branches of Chapel Hill's scientific school: civil engineering

and scientific agriculture. It will then show the processes that the University undertook to create a new curriculum and train a faculty to man it. The story of these failures and this creation shows a public institution of higher learning attempting to respond to the needs of its society through the expansion of technical training. It also represents a Southern institution readily participating in and being accepted into a greater intellectual world; indeed, scaling the heights of the contemporary American academy encountered on the 1851 tour.

BACKGROUND OF THE SCIENTIFIC SCHOOL

Forty-four of the 49 young men who graduated from the University of North Carolina in 1856 were designated "scientific students." These 44 had been a part of an educational trend that dominated the middle decades of the nineteenth century, as scientific schools and scientific curricula began to spring up in colleges and universities throughout the nation. This trend saw Princeton begin its search for someone to teach "special applied courses" in 1843. Five years later, Williams and Amherst discussed forming a joint professorship in agriculture and other technical subjects, and Brown instituted a special scientific program in 1851.[12] In 1846, under the guidance of Benjamin Silliman and his son, Benjamin, Jr., a professorship of agricultural chemistry was created at Yale when the father of a prospective professor was encouraged to endow a chair for his son; thus, Yale's Sheffield Scientific School was born.[13] In 1847, Harvard's corporation approved a plan for its own scientific school, and textile magnate Abbot Lawrence donated $50,000 in order to create the Lawrence Scientific School.[14] These special schools and curricula began to redefine the meaning of a college education.

This national educational reform coincided with North Carolina's Whig Era (1835-60). During these 25 years a school for the deaf, dumb, and blind was established; the legal lot of women bettered; suffrage laws extended; criminal laws were liberalized; and a system of common schools equal to the best in the nation was created in the awakening "Old Rip." Indeed, noted historian of North Carolina, William S. Powell, claims that: "The years before the tragic Civil War were the most progressive North Carolina had known since its first permanent settlers arrived more than two hundred years before."[15] However, it was the railroads that proved to be North Carolina's major nineteenth-century internal improvement, and it seems likely that the railroads inspired the creation of UNC's School for the Application of Science to the Arts.

By 1848, North Carolina had recovered from the economic depression in which it had floundered since the panic of 1837, and, in that year, the state-financed and much-maligned railroads began to show profit. In the same year, Governor William A. Graham opened the legislature with a speech containing references to the state's abominable transportation facilities. In response, the North Carolina Railroad was chartered within a year. The leaders in the establishment of the new rail-line were all trustees of the University: Edward Dudley, John M. Morehead, William A. Graham, Calvin Graves, and Romulus Saunders, along with UNC's president, David Lowry

Swain. This group gathered at the University's commencement in June 1850 and announced that all ten thousand shares of North Carolina Railroad stock had been sold. A chief engineer for the project, Walter Gwynn of Virginia, a graduate of West Point, was chosen at a salary of $3,000 a year (one third more than the Governor of North Carolina then made), and four surveying parties were created—none of whose leaders was a UNC graduate.[16] These parties finished their surveys in May of 1851, and a formal groundbreaking followed in July. On June 3, 1853, the first track was laid to the punctuation of a booming cannon.[17] The new railroad needed engineers. Those engineers, it was hoped, would come from the new educational enterprise just forming in Chapel Hill.

Only five months after the North Carolina Railroad's formal groundbreaking, The University of North Carolina's trustees (most of whom were also promoters of the railroad) were calling for a professorship in engineering, probably as a result of the Board's embarrassment at UNC's inability to provide any of the four surveyor/engineers for the new set of tracks.[18] This impetus for the University's additional emphasis on technical training first led to a desire for a professorship of civil engineering, and it eventually created a whole new educational enterprise attached to the University of North Carolina.

The University of North Carolina's School for the Application of Science to the Arts, which began accepting students in 1854, had from its inception two main branches of study: agricultural chemistry and engineering. Both branches were fields of practical utility that many North Carolinians considered important for the economic improvement of the state, and both had long been mulled over by University and state leaders well before being incorporated into the school's curriculum.

EARLIER ATTEMPTS AT ENGINEERING

Engineering in the School for the Application of Science to the Arts had a forerunner in a string of curricular proposals beginning in 1837. In that year, UNC's Board of Trustees decided that the study of Civil Engineering should be added to the curriculum. The minutes of the Board of Trustees read:

> [Be it] resolved unanimously that in the opinion of this board it is highly desirable and expedient that Civil Engineering be taught in the University and that the Executive Committee be instructed to consider the subject and upon a conference with the faculty to introduce this branch into the system of studies either by the establishment of an additional professorship or in such manner as may best comport with the present arrangements of the college and the funds of the institution.[19]

The Executive Committee wrote to the new President of the University, popular former Whig governor David Lowry Swain, and asked him "to submit such plan as will

enable the committee to carry the foregoing ordinance [the creation of a professor of civil engineering] into effect."[20] Swain deferred responsibility, and, in August of 1838, the faculty accepted the duty to create this plan.[21] A month later, they had yet to reveal a method of teaching civil engineering. The Executive Committee of the Board of Trustees reiterated its desire for this course of study by stipulating that: "It shall be the duty of the faculty to introduce the study of Civil Engineering at the University." A caveat stated that if tuition did not amount to more than $7,000, this stipulation would "cease and be void."[22] Cease and be void it did, for the University would have needed 140 additional students—nearly equal to its current enrollment—to raise $7,000 in tuition. Civil engineering was not formally offered, although the professor of chemistry, mineralogy, and geology did teach it to an entire senior class during at least one year.[23]

Four years later, in 1842, the Board of Trustees tried again to establish engineering, this time through the Board's Executive Committee: "Be it further ordained, that the said Executive Committee be and they are hereby authorized to establish at their discretion a professorship of Civil Engineering."[24] Still nothing occurred, and, two years later, the Board resolved again:

> [T]hat the executive committee be and they are hereby authorized, if they shall deem it advisable, to employ an additional or assistant professor of mathematics whose duty it shall be to teach Engineering, Civil or military or both as the committee may decide best, and also to instruct such of the students as may choose to enroll in military exercises during such periods of time as the faculty may prescribe.[25]

Despite the passing of four resolutions, the professorship of engineering had to wait until the establishment of the School of Science.

EARLIER ATTEMPTS AT SCIENTIFIC AGRICULTURE

The agricultural branch of the School of Application of Science to the Arts also could claim a series of failed forerunners. For years the state's leaders had promoted "scientific agriculture" as an internal improvement. They had formed county and state agricultural societies, created awards for pest management and manuring; they had even established separate agricultural schools in the hopes of disseminating the most recent advances in agriculture. In a pattern that matches the fortunes of many internal improvements in North Carolina, scientific agriculture received a great deal of attention in the early 1820s, was largely ignored during the late twenties and throughout the 1830s, but was revived in the 1840s—finally blossoming in the 1850s. Throughout this history, attempts were made to enlist the University of North Carolina for the betterment of North Carolina's farmers.

The teaching of agriculture had been called for in UNC's first curriculum (1792). As early as 1822, governors were citing the need for a professorship of agriculture and a model farm at the state university in their annual messages.[26] Some efforts seem to have been made along these lines. In 1844, describing the campus, *The Hillsborough Recorder* announced that "a section of ten or twelve acres on the south easterly corner is designated for a botanical garden."[27] The plans for this garden arose as a result of the expansion of the University's facilities in the 1840s. In 1845, Governor Swain wrote to Robert Donaldson, an alumnus of the University living in New York, "in relation to the best mode of procuring plans for Society Halls at Chapel Hill and for obtaining the services of an individual skilled in laying out pleasure grounds, landscape gardening, *etc.*"[28] Donaldson, an investor and patron of the arts, was known for his architectural interests, having built the Lafayette Hotel in Fayetteville in expectation of General Lafayette's 1825 visit to North Carolina. In 1828, he had moved to New York where he became a patron of young artists and writers. His estate on the Hudson, Blithewood, showcased new ideas in landscape design, sporting an English garden with winding roads, waterfalls, and ravines crossed by bridges. Alexander Jackson Davis, a Greek Revivalist architect and Donaldson's friend, planned and executed the designs for this home and its gardens.[29]

In a search for an architect to plan the University's new halls and a landscape gardener for the pleasure grounds that were to surround them, Swain and Donaldson considered not just the physical expansion of the University, but its curricular development as well:

> In the meantime I cannot help expressing my surprise that there should be any hesitation among the trustees of the University of *North Carolina* in giving the preference to the professorship of *agriculture* rather than the one of the military science. Improved modes of husbandry and tillage and a change in the *staple products* of North Carolina can alone arrest the declension of the state, and it is very obvious to me that the principles and practices of agriculture must be taught by means of lectures and the experiments of a model farm to *educate* young men and by them disseminated. North Carolina is and always will be an agricultural state and the *sooner* its *agriculture* is reformed—the better. As for soldiers—Your Chevaux de Frize of a coast will keep off invaders and could not the professor of mathematics teach Civil Engineering and Drawing?[30]

Nothing is known about the drive for military instruction in the University, but Swain much preferred the teaching of agriculture, and Donaldson agreed. The planned pleasure grounds and botanical garden soon became something more. Donaldson

suggested that this opportunity be used to add a model farm to the University, and his friend Davis was hired to draw up the plans.[31] Swain, nevertheless, wished to turn the position of landscape gardener, which was needed to carry out Davis's plans, into some sort of professorship of agriculture. The University, however, was having a difficult time funding the project, but Swain hoped that the General Assembly would find the requisite funds.[32]

Davis, Donaldson, and Swain kept in touch over the next few years, as they searched for a "gardener." In August of 1845, Davis informed Swain that he had found just the man for the position, a Mr. Eliot.[33] The qualifications Davis cites show that the University was looking for a man who was "well informed on soils and climate" and could perform useful service, along the line of "extension work," as a "lecturer on Agriculture." Swain hoped to find someone who would deliver a program of lectures, oversee improvements to the campus, be involved in forest conservation and design, and maintain the University's landscape architecture.[34] Eliot never came to Chapel Hill, perhaps because the proposed pay was so miserable.

Swain, Donaldson, and Davis continued to search for an extremely well-rounded gardener, finally settling for a true landscape gardener who had once served the Duke of Northumberland.[35] The gardener, a Mr. Loader, was in place by March 1847, and began work immediately on Swain's personal garden.[36] He remained on the campus until December 1852, but he seems only to have carried out the plantings called for by Davis's Greek Revival designs.[37] There are no records of his delivering any lectures, nor any indication that his successor, Mr. Paxton, did either.[38] Swain's rather dubious plan to bring a Professor of Agriculture to the University in the guise of a landscape gardener failed despite an extended effort.[39]

The University of North Carolina, then, had been attempting to add scientific agriculture and civil engineering to the school's program of study for nearly 20 years—with little success—when the North Carolina Railroad chugged into the picture.

ON THE DRAWING BOARD

In January of 1852, while plans for a railroad were proceeding swiftly elsewhere in the state, the Board of Trustees again attempted to create a professorship of civil engineering, ordering the faculty to "report as early as convenient, a plan for organizing the same."[40] Eleven days later, the president communicated to the faculty the Board's resolution and requested that they "prepare and report a plan" to organize this professorship.[41] The faculty, following a procedure employed during other proposed curricular changes, wrote to their teaching colleagues at other schools to inquire how *they* taught engineering. A letter from the Military Academy at West Point recorded the questions that the UNC faculty had asked in their canvas.

1. Do you use any textbooks besides your own?
2. What is the latest edition?
3. Do you teach by lecture or by recitation from a textbook

or both?

4. How long does it take a class to attain a competent acquaintance with the science?
5. Do you lecture and if so is the lecture an oral or a written one?
6. What instruments, models, *etc*., are needed and where can they be procured?
7. How often and how long at each time are the cadets practically engaged in engineering?

Replies from instructors at West Point and Yale survive.[42] Denison Olmsted, Professor of Astronomy in New Haven and a former UNC professor, wrote his former Chapel Hill colleagues, telling them that Yale's scientific school was "in most respects as distinct from the academical departments as the law school." Olmstead perceived his schools' curricular experiment to be a professional training ground for scientists. He wrote: "Although we welcome these new *professional* departments which in hope will detain many of our students after they have completed their academic course, yet we do not expect to sacrifice one iota of that course of which we still believe indispensable in the highest degree to the 'practical' man, inasmuch as we believe it most conducive of all systems of education to make able men of well-balanced minds.[43]

Reflecting on this correspondence in his report to the president, senior professor at the University and its most distinguished man of science, Elisha Mitchell, noted that universities had previously had two goals: 1) to "enlarge and strengthen the natural powers of the mind by exercise," and 2) "to communicate such positive knowledge as a young man may need in after life." The first of these two objects had received most of the attention of educators and the positive knowledge that had been passed on had been relegated to professional training in theology, medicine, and law. Now, however, the time for a new set of professionals had arrived and schools were being called upon to provide for them.

Mitchell stated how farmers had once been considered "clodhoppers," dim and rude; however, through the sciences, agriculture had acquired the "dignity of an art and a science." He then reminded his readers of textiles, with its required chemical and mechanical skills. The steam engine and telegraph, too, "require the services of educated men...and people look to the colleges of the country to furnish the article that is wanted."[44]

The University was determined to supply this "article," even though specific plans for its new enterprise were a bit hazy. Despite the amorphous plans for the professorship, the faculty finally took a first step and sent out a feeler to a candidate for the position, one of the students that had taken the northern tour of 1851. Benjamin Sherwood Hedrick had been a part of the tour a year before and had stayed behind to work and study. Mathematics Professor James Phillips wrote Hedrick asking his former student for a report on the Lawrence Scientific School at Harvard where

Hedrick was a student.[45] In the same letter, Phillips also asked his former star pupil if he would like to prepare himself for UNC's anticipated professorship of engineering.

Born near Salisbury, N.C., Hedrick was the son of a German immigrant bricklayer. He had entered the University of North Carolina in the fall of 1848 as a sophomore and had graduated in 1851, having been awarded "the first honor in the senior class." He had been especially capable in mathematics and, therefore, was recommended by Swain to the Secretary of the Navy, William A. Graham (formerly governor of North Carolina, 1845-49), for a clerkship in the *Nautical Almanac* in Cambridge.[46]

The *Nautical Almanac*, founded in 1849, was then one of the most advanced scientific projects in the land. Here, hoping to better the *British Nautical Almanac*, some of America's mathematicians and astronomers sought to produce annual compilations of tides and astronomical data for the use of mariners. The community of science-oriented young men at the *Almanac* was particularly fertile; one of them later remembered that "philosophic questions were our daily subjects of discussion." Within this environment, it is no wonder that "the *Nautical Almanac* became a notable training ground for bright young scientists."[47] Interestingly enough, their first compilation was produced while Hedrick was in Cambridge.[48]

When he received Phillips's letter, Hedrick was living in two rooms above the *Almanac* office. He worked five hours a day and, during his off-hours, took advantage of his proximity to Harvard to study under Eben Horsford, Benjamin Pierce, and Louis Agassiz. Although he continued to dabble in mathematics (he was reading LaPlace's *Méchanique Célèste*), he had decided to make chemistry his principle study. Hedrick reported to his fiancee that he also had found time to seek out and sit through the sermons of noted preachers, visit museums, and read Sir Walter Scott. "There is so much life and activity here," he wrote, "that I don't know how anyone that is used to it should ever live in such a dull place as North Carolina is now."[49]

Upon learning of Hedrick's sundry exciting activities, the future "Mrs. Professor Hedrick," Ellen Thompson, hesitated at having him accept UNC's job offer; she wanted to experience ten to twelve years in the North before returning to the South, and told her beau that local gossip rumored that Charles Phillips, not Hedrick, was being considered for the new post.[50]

After hearing his fiancee's wishes and the Chapel Hill gossip, Hedrick applied himself more diligently to his work, hoping for a raise so that he could better support his bride. He soon gained his own "planet" to plot and became the *Nautical Almanac*'s office manager during its director's frequent absences. He also attempted to ignore the elder Phillips's hint at a promised position, telling his fiancee that the increased knowledge a longer stay in the North would give would allow him to better serve his native state if and when he ever returned.[51] Back in Chapel Hill, the faculty still thought highly of the unimproved version of their recent promising graduate, singling Hedrick out during one chapel talk as someone whom the students should emulate.[52]

Eight months passed after the faculty was first asked to prepare a report of the proposed addition to the faculty. When the subject of the professorship of civil

engineering was again raised, only "some conversation was had" by the faculty before they adjourned.[53] In the same month as this conversation, Davidson College, a newly-opened Presbyterian institution in the western section of the state, made overtures to Hedrick, who was honored by the offer but hated giving up his "extensive course of study." Nevertheless, he was tempted by the position. Charles H. Davis, Hedrick's supervisor and advisor, urged him to stay in Cambridge, noting that after studying a little longer, he could be a professor any place in the country. Hedrick worried that his refusal to Davidson might ruin a rare opportunity to return home. "I would prefer going to North Carolina and I can not get [a professorship] there every day," Hedrick wrote in the fall of 1852. He asked about the particulars of the Davidson position and notified the college that he preferred to teach chemistry, indelicately commenting that it was becoming the policy of Harvard to send new professors overseas to prepare for their positions. He suggested that Davidson consider this cutting-edge arrangement.[54]

Perhaps spurred to action by its neighboring competitor, the University in Chapel Hill seems to have answered the Davidson bid. Sometime before the December 1852 meeting of UNC's Board of Trustees, Hedrick had turned down an offer by President Swain to become UNC's professor of engineering. "As I have never given any time to drawing and the practical part of engineering, I think I should not now change my course of study as much as would be necessary to gratify myself in these branches," Hedrick wrote to Swain. "I should prefer to teach chemistry and physics. [I] would not object to any of the mathematical sciences except those mentioned."

To help his bargaining position, Hedrick hinted that Davidson had inquired about his joining its faculty.[55] Confronted with the possibility that it might be losing a particularly well-groomed candidate, UNC's Board of Trustees finally arrived at an appealing solution. Apparently after recognizing that Hedrick would refuse to serve as professor of civil engineering, the Board of Trustees determined to bring him back to Chapel Hill by offering to let him teach the subjects he desired.[56] At the same time, they decided to offer the engineering professorship to another member of the 1851 northern tour, Charles Phillips, son of UNC's mathematics professor.

Charles Phillips had been born in Harlem, N.Y., in 1822, came to North Carolina with his father, James, in 1827, and entered UNC's freshman class at age 15; he left the University in 1841 as a "first honor graduate."[57] Soon after he graduated, Phillips studied medicine with Dr. Johnston B. Jones of Chapel Hill, who had just returned from medical study in Paris. After two years of medical training, Phillips's "mind and heart underwent that change rightly termed conversion." He became a Presbyterian minister and spent a year attending the Princeton Theological Seminary. Sickness curtailed his study, though, and he returned to Chapel Hill where he tutored mathematics while he awaited renewed vigor.[58] By 1852, he was ready to take up more serious work, and he was tempted to accept the Trustee's offer, asking first, however, that they pay for a substitute to assume his teaching duties while he joined Hedrick in Cambridge in order to prepare himself to teach engineering.[59]

On the same day that Phillips made this request of the Trustees, the Board finally directed the Executive Committee and president to provide for instruction in agricultural chemistry. Although the University had perennially flirted with teaching "scientific agriculture," this was the first mention of such a professorship in the Trustees' record. Fourteen days later, the Executive Committee took notice of the full board's resolution to employ "with little delay as possible...one or more additional professorships with a salary or salaries not exceeding in aggregate 2800 dollars," using this charge to justify creation of "The School for the Application of Science to the Arts" in which Charles Phillips was to teach as professor of civil engineering and Benjamin Hedrick as professor of agricultural chemistry. The Executive Committee also allowed Phillips "to go abroad for the purpose of preparing himself for the proper discharge of his duties." The president was to submit a detailed report on the organization of this new school to the trustees "as early as practicable;" this plan would take effect in January of 1854.[60]

Charles Phillips was still attempting to "screw up his courage" to accept the new position when Governor Swain gave the "lever its last and most effective turn" by writing Trustee Bartholomew F. Moore and stating that Phillips would accept the offer. Phillips finally assumed the position at the behest of his friends, all the while fretting that "its duties are to be very onerous and, if decent engineers are required, of great, very great responsibility." Besides the difficulty of the task, Phillips wondered, "If my pupils fail in what they undertake will not they and the public justly blame me?" Phillips was also upset because he did not think that he was the best man for the job. After all, one of the major reasons that he had been offered the position was because he was willing to settle for the small salary. He knew full well that one of the railroad engineers had been offered the job but had asked for $800 per year more than the Board was willing to pay. Phillips consoled himself, noting that, although the railroad man was an accomplished engineer, he might not be able to handle the drudgery of teaching.[61] Coming from a faculty family and having been a teacher for some years, Phillips was certain that he knew this drudgery well.

Charles Phillips formally accepted the professorship in a letter to Swain and immediately warned, "I can only say it will be indispensable that I go somewhere to study specifically the applications of what I have so far [been] teaching the rudiments." He later wrote to Hedrick to ascertain where he should go to begin these indispensable studies, and Hedrick responded, "I do not believe you can get all you would like to have here or any where else in this country—probably more here [Cambridge] than any one place. The engineering school seems to be doing very well." Hedrick also pointed out that, in addition to the formal opportunities in Cambridge, Pierce, a correspondent of Phillips's father, offered lectures, recitations, and private tutoring.[62]

While these plans were underway, the University must have been attacked for not providing an education suitable for the new age, for in the same letter in which Phillips accepted his position, he wrote Swain commiserating, "I wish that I could have been with you and had a night to repel the charge of 'Old Fogyism'—from us." In this same

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missive, he blamed Chapel Hill's isolation for the school's perceived backwardness: "If we know not what 'Young America' is doing [we] cannot sympathize with it." Phillips continued:

> If the old ways are wrong—even if we are too theoretical in our teaching—our methods have produced the most progressive set of people ever known. What is the use of laying information before those who are not qualified to retain or use it? Gentlemen of mature years—and minds enlarged and strengthened by education direct or indirect are delighted because they understand certain lectures and practical instruction—they conclude that our immature undeveloped pupils could enjoy and profit by them as much—. I would that they would see [?] an article in the last *Biblical Repository* on the Prussian system and aims in education—a system that is fast resulting in placing Prussian Scholars (Savans) at the head of all the branches of science which they pursue.
>
> Were their education in Morals as thorough and as sound as its it in science they might go forth and possess the world simply because they are taught by patient drilling to understand what they read and talk only of what they understand.[63]

Soon after being named the professor of engineering in the new school, Charles Phillips wrote the secretary of the Board of Trustees, Charles Manly, thanking him for the honor and asking exactly what the trustees intended: Would UNC create, in reality, a separate school; adopt the mode of the parallel course; or follow the time-honored and rapidly disintegrating practice of expanding upon a required plan of study? He also wanted to know, "Do the Trustees intend to afford opportunities of making those acquisitions which will stimulate and enable an Engineer to aspire to the highest ranks of his profession and secure the attainment of them? and will they be content with less brilliant results?"[64]

Not only was Phillips confused about what type of program he had been called to lead, but he also did not know if the students whom he had been teaching mathematics over the preceding several years were ready for a more intense, professional course. He noted that while the simpler applications of mathematics to engineering had always been taught at UNC, his experience had shown that Carolina's students were uninterested in the "prolix" and "tedious" applications. They also easily tired of practical instruction such as triangulating practices, "the staple of effective instruction in Engineering."[65]

Phillips ruled out one of the paths open to the school's development. He explained that if the Trustees planned to "interweave" the "scientific" courses into the general program, something already being taught would have to be removed. A curricular

change was not as easy as simply substituting engineering for some of the mathematics courses. Indeed, if engineering were to be taught, *more* mathematics would be required of the UNC students. "Light on all the minutiae of the plan of the Trustees, I cannot hope for," Phillips wrote. "I ask only for some general indications of their wishes and expectations."[66]

Perhaps despairing of the new school's viability and the Trustee's lack of direction in this new enterprise, and maybe even doubting his ability in engineering, Phillips offered his services to the University in another form, stating, "I may be useful to the Institution as an Algebraist and Geometer—but be entirely incapable of being such an Engineer as it needs and may procure elsewhere." He continued, "My conscious will not permit me to enter into obligations which it is not possible or probable that I can fulfill."[67]

Despite these doubts, *The Hillsborough Recorder*, in its notice announcing the opening of the scientific school, introduced its readers to the two new instructors and noted, "The Science of Civil Engineering has become of vast importance to the South within the last few years, from the number of railroads in process of construction, and Mr. Phillips's intimate acquaintance with all the mathematical branches...eminently qualify him for teaching it."[68] Phillips would soon be joining Hedrick in Cambridge to build upon this "intimate acquaintance."

CHAPEL HILLIANS IN CAMBRIDGE

One of the leading centers of scientific activity in the United States at the time, Harvard College, boasted a faculty of scientific superstars featuring renowned geologist/naturalist Louis Agassiz, mathematician Benjamin Peirce, chemist Eben Horsford, botanist Asa Gray, and engineer Henry Eustis. Cambridge also claimed the "best scientific libraries in the country." It was to this center of science that the University of North Carolina's recently hired instructors in the Scientific School repaired in order to prepare for their future.[69] Hedrick had been in Cambridge since the summer of 1851, and Phillips, with leave from UNC's Board of Trustees, arrived in the first months of 1853.

Harvard's Lawrence Scientific School must have been unlike anything Phillips and Hedrick had ever known. Teaching took place, not in recitation rooms over the books, but in individual study, largely performed in the laboratories. For example, when N.S. Shaler, later Dean of the Lawrence Scientific School, was a student there, he was challenged by his instructor, Louis Agassiz, to unravel the mysteries of a small fish placed before him. Agassiz had said simply, "Find out what you can without damaging the specimen; when I think you have done the work, I will question you." Seven days later, Agassiz reappeared, "Well?" The pupil spoke for an hour. Agassiz replied, "That is not right," and left. With determination, Shaler began another week of ten-hour-long days spent leaning over that poor little fish, later reporting that he had came up with results that "astonished myself and satisfied [Agassiz]."[70] Having grown up surrounded by a University much taken with recitation as a method of education and with a father who was a great believer in that method's efficacy, it is easy to understand how Charles

Phillips would be a bit disconcerted at the teaching methods of the Lawrence School. Phillips wrote:

> In the scientific school there is but little of what we call teaching. Mr. Hedrick has not spoken to or seen his chem. prof. in a fortnight yet H[edrick] is in the laboratory everyday and his fees at the school amount to two hundred dollars per annum. So I will have merely a consulting teacher in professor Eustis.[71] But he *teaches* far more than Prof. Horsford.

Professor of Engineering Eustis, according to Phillips, believed in the importance of theoretical mathematics "and the leaving of practical applications to opportunities in the field;" however, in the use of instruments, the Harvard instructor left "the young men greatly to themselves."

Phillips spent a good deal of his time in the Engineering program drawing (mechanical and landscape) and painting in watercolors. He read residual, integral, and differential calculus with Peirce, "attending him six times a week." He studied mechanics privately and listened to Agassiz on geology twice a week. The noted Swiss scientist occasionally took his students on field trips where he would point out interesting aspects of the surrounding natural features. Phillips reported, "It is pleasant—stimulating to hear Peirce and Agassiz lecture."[72] Phillips and Hedrick benefited from this, the most advanced scientific training then available in the United States, as both observers and students.

These two Carolinians, perhaps, entered into their studies a bit apprehensively, worried about their previous education and their abilities, but these doubts did not last long. Phillips was delighted to see that his alma mater and Harvard were more alike than he had thought. "I was at [an examination] in Engineering," he wrote to a friend in 1853, "and entre-nous again—I have seen better examinations. Slowness and inaccuracy are not characteristics of C. Hill mathematics only."[73]

Indeed, after one month at Harvard, Phillips began to have higher hopes for UNC's ability to train engineers. "But I do believe that we can do really as well at C. Hill as they do anywhere that I have heard of hereabouts although our pretensions be not so high."[74] He further reported that his teachers "say that I will learn to draw accurately and gracefully—and as far as my Mathematics—I don't want to be accused of vanity not to indulge the ridiculous feeling—but I may say it to you—I won't change my amount of attainments with any one here but Prof. Peirce. Some know more on particular points—but not on the whole—the discovery greatly cheers me."[75] Hedrick, too, was gaining confidence the longer he stayed in Cambridge. Phillips reported to Swain, "Hedrick says he can do more than Prof. Horsford does—(he doesn't decide as to what prof. H. *can* do)."[76]

While at Harvard, Phillips and Hedrick took advantage of the proximity of other schools,

> Mr. Hedrick and I propose to visit Saratoga and the Agricultural Fair next Thursday and Friday—we want to see some of these cultivated things—and *see* what is called good ploughing. We hope to visit Troy and its Polytechnique school. I shall be gratified if it be not another Poughkeepski [?] affair—Thence I shall go to N.Y. via West Point to inspect its Library and get a list of books on Engineering *etc. etc.* and talk with profs.... To this place I shall return via New Haven and Providence to see their profs. and libraries.[77]

From Providence, Charles Phillips wrote Swain again. He reported that he spent the whole evening in "intellectual gymnastics" with Dr. Francis Wayland, the president of that institution "of which Prof. Peirce sneers so much." He stated that Dr. Wayland was satisfied with the experimental scientific program recently established at this school,[78] and noted that Wayland "talked with interest of our scheme remarking that it was a step in the right direction—that my place never could be so popular or give such immediate results as Mr. Hedrick's and that in our peculiar circumstances we would have our own difficulties to overcome and that we must [create?] the solutions ourselves." Phillips pointed out that Dr. Wayland saw no "diminution as yet in the number of those who study the classics, *etc.*, on the contrary a great increase...." He also noted that, "Dr. Wayland is inciting his Professors to go out and lecture to the working class of this and the neighboring cities as they have time and opportunity."

Phillips found the lab of the chemistry professor at Providence to be better supplied than the lab at Yale, but not as well as Harvard's. Here, too, the chemistry professor taught by personal supervision. "Each student pursues a course with a different very specific professional aim—the dye house, for instance," Phillips observed. Brown also had more interaction between the scientific students and the regular students than did Harvard or Yale. The divided nature of the student bodies at the two latter schools caused a ranking among students so that the scientific students were looked down upon by the classical students. Phillips and Hedrick absorbed this all.

Since the new faculty of Chapel Hill's scientific school had traveled all the way from North Carolina to inspect these different schools, they were particularly struck by the ignorance regarding what was going on at nearby institutions. To their surprise, many of the teachers had never been to any of the other schools in their region. Because of this Phillips found himself being "closely questioned" by faculty members about neighboring practices.

Perhaps honed by these "close" questions and filled with the raw data of their observations and classwork, the faculty of North Carolina's Scientific School began to

think about its new school. Phillips soon wrote home giving a brief overview of these first thoughts.

> Mr. Hedrick is decidedly against encouraging men to attend to a professional education from the beginning—the experience in the Nautical Almanac Office is decidedly against employing such.... They have a limit quickly reached and impassable to them and within their own sphere are of little influence. No man loses influence by being able to translate the Greek and Latin terms in the Mathematics and to enjoy and quote learned and apt [apothegms?].[79]

PHILLIPS'S PROPOSALS

Having visited many of the scientific institutions in the North and studied with America's leading scientists, Phillips and Hedrick thought long about their institution's particular situation.[80] Their Northern experience made the two a great deal more confident in their abilities as teachers and scientists. As Hedrick wrote concerning UNC's new enterprise, "... if [a scientific school is] properly commenced, I have little doubt that it will soon obtain respectability among similar institutions in other parts of the country."[81] During the next several months, these two Carolina honors students drew upon these experiences and thoughts. They found themselves writing to their former instructors with some authority.

In October of 1853, Phillips was ready to return to his hometown and alma mater. He wrote to his wife: "I know now what I have to do—and I want Governor Swain to say his say right off and I will come home as soon as I take [some watercolor classes]. I find that Pa has books in abundance for my purposes at present together with two or three I'll bring with me. I think my own duties will be very definite compared with Hedrick. I will be more incessantly occupied than he—but he will have men to criticize and complain of him."[82]

Three days later, Phillips and Hedrick sent home their preliminary thoughts regarding the "School for the Application of Science to the Arts." This October 1853 proposal, written by Phillips with Hedrick's approval, was the first of three plans offered by Phillips and Hedrick for the organization of UNC's scientific school.[83] Of the three major approaches that colleges and universities were then pursing in order to incorporate the new "practically-oriented" college coursework—partial course plan, parallel coursework, and the hybrid of the two, a separate scientific school—this first proposal came the closest to the scientific school model. A second proposal, coming only two months after the first but this time written in Chapel Hill, essentially described a parallel course plan but did allow for partial course students. A third curricular proposal maintained the parallel course structure of the second but discouraged the Board of Trustees from including partial coursework.

These three plans show how the new educational scientific enterprise evolved from the first plan's "true" scientific school, which would have been an affiliated institution with a student body separate from (although also derived from) the University and dedicated to the technical training of professionals. By the time the third plan had been proposed, it was a parallel course that essentially allowed students to take additional science courses in lieu of some of their other studies. While the technical aspects and professional training accentuated in the first plan were not eliminated entirely from the final plan, more emphasis eventually was placed on the "theoretical" aspects of the sciences. In other words, this three-stage planning process saw the new school move from more technical and professional training to a more solid, theoretical scientific education.

THE FIRST PROPOSAL

In the first proposal, the scientific school model where students were to be as "distinct from the academical departments as the law school," Phillips expected students well-grounded in the theoretical aspects of math and natural philosophy. To this body of knowledge he planned to add the practical skills emphasizing work in drawing, field calculations, and the manipulation of instruments, "to make the instructions as practical as the time of the teacher will permit." He planned to supplement a mechanics course with teaching on canals, roads, and machines. Proposed daily recitations would be from those textbooks used at West Point, "the most useful engineering school in the country."

In agricultural chemistry, Hedrick's domain, students would enter their study with a basic knowledge of the chemical sciences. Then, through direct supervision at the laboratory bench, they would learn "fully the various methods of analysis both qualitative and quantitative." There would be few lectures. The study would be individualized and made to tailor a specific profession—with special emphasis given to all students requesting agricultural chemistry. Students at this educational enterprise would spend three years in study and follow all of the college laws. This first plan was essentially the program that Phillips and Hedrick had observed at Harvard.

THE SECOND PROPOSAL

The faculty read this outline and asked for a "written programme for [the school's] organization."[84] The subsequent in-depth curriculum that Phillips proposed was a parallel course plan, not a fully separate scientific school. Two types of students were envisioned: the amateurs and the professionals. The professional students were to be taken from the seniors who had followed the entire academic course. They would begin the scientific school at the close of their first session of the senior year and continue their studies for an additional eighteen months. Assuming that these students had taken more mathematics in their college course than was already required, Phillips stated that

they would be well qualified to "begin at once with superior advantages the course on Engineering, Mechanics and Descriptive Geometry." These students would also receive instruction in drawing and drafting, and in the various uses of their instruments.

The second class of professional students, the independent students, would attend only the scientific school, foregoing the college preparation. Their mathematics course was to be doubled in speed. Phillips was leery of the independent class, however, stating that it would be so much to the "advantage of both the teacher and the pupils to have none but college students in this school that it may be worth the while to consider whether any independent students shall be invited to join the University.[85]

Phillips went into details such as when to schedule classes, concluding that "the whole of Saturday might be occupied by Engineering excursions profitable to the soul and body."[86] He also noted that while Hedrick would be busy personally supervising the manipulations of his students, "his own investigations will also doubtless, at the proper time, call the attention of his pupils to add to their stock of experience or to awaken their curiosity and stimulate their exertions."[87] Thus, Hedrick was apparently expected to perform research as well.

In this plan, engineering students would be encouraged to study agricultural chemistry following their training and vice versa. This program thus called for 4 years of college, 18 months of science course work, followed by 6 additional months of "crossover" work. Students who completed all work would receive a Master of Arts degree.

If it had been executed, this program would have provided a more extensive scientific education than was offered at Harvard, Yale, or West Point. Of course, this was just a proposal. Phillips presented it to the faculty and, after being read twice, it was ordered to lie on the table.[88]

THE THIRD PROPOSAL

In December 1853, president Swain delivered Phillips's third proposal, in the form of a "voluminous paper," to the Board of Trustees.[89] In many respects it closely resembled the one placed before the faculty the previous month. Now, the two branches of students, formerly called amateur and professional, were to be "University Students" and "Scientific Students." The parallel course structure was maintained, but by discouraging the inclusion of partial students, the report integrated the new school more closely with the University. The chemistry and engineering divisions of the new school were also brought closer together by having all students take courses in both fields. Students were encouraged to stay on for further study if they desired. The result of these changes was more theoretical grounding in the sciences and less professional training than first envisioned. This report was also less ambitious than the first two proposals, but for that reason, it could be put in place fairly quickly. Such expedience pleased the Board, which wanted the state to get some economic benefits from this investment in short order.

The report gave extensive consideration to the form that instruction would take. It noted that there were two schools of science education in the United States. One was

dominated by graduates of West Point, where professors "drill their pupils in the principles peculiar to each of the Sciences, by means of constant recitations on definite portions of generally approved textbooks." The other, presided over largely by graduates of liberal arts establishments, taught almost exclusively by lectures and demonstrations. Concerning these programs, Phillips wrote: "These are said to [be] equally effective with textbooks in familiarising the minds of the students with the principles to be used and besides afford very many opportunities for calling attention to the special applications of the principles referred to." In choosing between the two, the method of recitation employed at West Point was recommended, even though the work involved in such a system was wearying both for the instructor and student. Nevertheless, Phillips pointed out that the school need not be tied to the extremes of either method, and he proposed something of a middle ground. He hoped to use lectures to review subjects studied, in order to give the students "birds-eye and connecting views of what their textbooks might leave too much isolated, as well as communicate information as to their application." In the everyday and basic portions of the subject, recitation would suffice.

Phillips ended his report in a decidedly optimistic way, writing that "a new field of usefulness is to be opened by this institution where in the education faculties and the disciplined energies of her sons may secure for North Carolina riches now not dreamed of." The Board read the report and ordered that the school be put into operation accordingly "and the sum of $1300.00 directed to be placed into the hands of Governor Swain to procure apparatus *etc. etc.*"[90] An announcement of the school's creation had already appeared in the University's catalogue of 1853-54:

> **School For The Application Of Science To The Arts**
> **Charles Phillips, Professor of Civil Engineering.**
> **Benj'n. S. Hedrick, Professor of Agricultural Chemistry.**
>
> This School Will be put in operation in January, 1854. At present, the Faculty of the University are not prepared to set forth the details of its organization. After due consideration, and examination of similar Institutions, the public will be advised of its precise aims, and of the means proposed for their attainment. It is expected to afford to the general student instruction in the Mathematical, Chemical and affiliated sciences, as used in supplying the various wants of society, as well as ample opportunities of preparation for the professional labor of Engineers, Artizans, Miners, Chemists, and Farmers.

The next year the university catalogue was able to state that the departments in the School for the Application of Science to the Arts "are now organized and ready to admit pupils to their instructions."[91] The Scientific School had finally left the "drawing board."

RESULTS

The School for The Application of Science to the Arts was the culmination of the development of science in the antebellum University of North Carolina. With its emphasis on the "practical" and its intention to serve the state through the production of technically trained men, this new enterprise mirrored what was taking place throughout the American academy.

The 1855-56 catalogue lists, for the first time, the scientific students; 44 of the 49 seniors took courses in the scientific school that year. In the academic year 1856-57, there were 71 seniors, 69 of whom were in the scientific school. Of the next year's 94 seniors, 85 studied science. In 1858-59, there were 93 seniors, 76 of whom studied in the scientific school. The following year, there were 84 seniors, and 70 were in the new school.

It is unknown whether or not the addition of the scientific school caused the sharp increase in enrollment at UNC, but the number students on the Chapel Hill rose from 251 in 1851-52 to 430 in 1859-60. Some of this increase came about as a result of partial course students, most of whom studied science. In 1851-52, there were 18 partial course students; in 1859-60, the catalogue recorded 39. Between the school years 1854-55 and 1859-60, inclusive, there were a total of 163 partial-course students, some of whom later received the A.B. The occupations of only 53 of these men are known: 19 were planters or farmers, 11 became physicians, 8 lawyers, 4 engineers, 4 merchants, 4 ministers, 2 teachers, and 1 was a druggist.[92] Only 8 B.S. degrees were conferred upon these partial-course students before the Civil War. Three of these graduate's occupations are known: one was a lawyer, another was a planter, and the third was an engineer.[93]

We know the professions of 29 of the first 44 young men listed as students in the Scientific School (1855-56).[94] One became an Episcopal priest, another a merchant, four planters, four lawyers, five physicians and eight became teachers. Six did not survive the Civil War, including three whose professions are recorded. Three of these students later received the A.M. from the University; the degrees might have been honorary rather than earned from the Scientific School, but two at least, were probably not honorary, as they fell within just a few years of the students' A.B. These three master's students were Joseph Buckner Killebrew, Abraham Haywood Merritt, and William J. Saunders. Killebrew, a journalist, was later commissioner of agriculture of Tennessee; Merritt, a teacher, journalist, and farmer, was the superintendent of the Chatham county schools and later a trustee of UNC; Saunders was a planter. Two other graduates of this class later went into scientific professions: James E. Sumner became a civil engineer, and David S. Patrick was, among other occupations, a superintendent of municipal scales.

While a study of the planning and creation of the School for the Application of Science to the Arts draws together and summarizes the concerns of antebellum science in Chapel Hill, it also presents an institution of higher learning diligently attempting to meet the needs of its society. It illustrates the processes one state university

employed to design and install a curriculum to address these needs and train the instructors required by it. It also shows the promise of the creation of a new type of Southern profession and the beginnings of a type of community in which scientific undertakings were more easily pursued—the first buds of a scientific community that would be destroyed, like a good many other things in the South, only a few years following the new scientific school's founding.

Of those three first-honor students who traveled to the North in the summer of 1851, Charles Phillips taught civil engineering before the failing fortunes of the South caused him to return to recitations in mathematics; Benjamin Hedrick taught agricultural chemistry for only a short while before his unpopular political beliefs made him an exile; and the third, Kemp Plummer Battle, the reporter for the tour, would leave a law practice to revive his alma mater and reintroduce the technical and scientific subjects to its plan of study.

NOTES

[1] Lucy Battle to William H. Battle, 12 Sept. 1849, Battle Family papers, Southern Historical Collection, University of North Carolina at Chapel Hill. Battle hoped to put his engineering skills to work on the new North Carolina Railroad. He even went so far as to apply for a job as a rodman, eventually being hired as a chainman following his graduation, only to take up a tutorship in the University instead of the chains. Kemp Plummer Battle, *Memories of an Old-Time Tar Heel*, ed., William J. Battle (Chapel Hill: University of North Carolina Press, 1945), 79. A portion of this trip is related in Kemp Plummer Battle's, "That Was New York: Visitors From the South," *New Yorker*, 11(14): 46. This abridged version of the more "touristy" activities of the group supposedly came from a journal kept while Battle was on the trip; however, no manuscript of the journal has been located. It is more than probable that one was created a great many years after the New York trip from the letters that Battle wrote his family while away.

[2] Lucy Battle to William H. Battle, 24 April 1851. Also Kemp Battle to "Dear Sirs," 2 June 1851, Battle Family Papers. These two unnamed gentlemen are, unfortunately, referred to be only their last, quite common, North Carolina names: Manning and Hill. The trip began inauspiciously when the first train undertaken by the Chapel Hillians (it was Hedrick's first ride on rails) reached a top speed of only three miles per hour before it broke down and had to be "pushed." Benjamin Hedrick to Ellen Thompson, 1 June 1851, Hedrick Papers, Duke University. Charles Phillips had already been hearing mathematical recitations in UNC's South Building for several years before this trip.

[3] Kemp Plummer Battle, *Memories of an Old-Time Tar Heel*, 84.

[4] Lucy Battle wrote her son Kemp here and addressed it simply, "Kemp Battle, New York City." Kemp found the letter at the post office but instructed his bother to use his full address in the future. Kemp Battle to his mother, 7 July 1851, Battle Family Papers.

[5] Kemp Battle to his young brothers and sisters, 13 June 1851, Battle Family Papers.

[6] Kemp Battle to Sister, 14 June 1851, Battle Family Papers. Union had begun "systematic and experimental science" earlier than most other liberal arts institutions. Stanley Guralnik, *Science and the Antebellum American College* (Philadelphia: The American Philosophical Society, 1975), 20, 70.

[7] Battle to [?], [?] June 1851, Battle Family Papers.

[8] Kemp Battle to Sister, 9 July 1851, Battle Family papers.

[9] Charles H. Davis, born in 1807, left Harvard at age 16 to join the Navy. He returned after seventeen years at sea and got his degree, becoming a lifelong friend of Professor Benjamin Pierce. Davis worked with the Coast Survey, studying tidal action, before becoming head of the *Nautical Almanac* in 1849; he served in that post until 1855 and again in 1859-62. He was one of the architects of the North's naval blockade of the South during the Civil War as well as the expeditions against Hatteras Inlet, before beginning operations in the northern Mississippi. Following the war he was superintendent of the Naval Observatory which included a stint at that institution's Brazilian station in 1867-69. Dumas Malone, *Dictionary of American Biography* (New York: Scribners, 1959), 106.

Eben Horsford, a student under Amos Eaton at the Rensselaer Institute, worked on the New York State Geological Survey after his graduation. While teaching at a female academy, he became interested in chemistry, leaving the United States in 1844 to study for two years under Liebig. Upon his return to the United States, he was named the Rumford Professor for the Application of Science to the Useful Arts at Harvard. It was Horsford who developed the first laboratory in America for analytical chemistry. In 1863, he retired from academic work to pursue a career in industry, becoming quite prosperous. Charles Coulston Gillispie, *Dictionary of Scientific Biography* (New York: Scribner's, 1972).

[10] Kemp Battle to Mother, 7 July 1851, Battle Family Papers.

[11] Along this vein, one of Battle's friends wrote him on his return from the North: "Kemp, your Northern tour probably left you grieved with old Rip Van Winkle. It can hardly be denied by her most affectionate and loyal sons that North Carolina is most sadly deficient in public spirit and station among her sisters." M. Troy to Kemp Battle, 20 Aug. 1851, Battle Family Papers.

[12] Guralnik, 132-5.

[13] Robert V. Bruce, *Launching of Modern American Science* (Ithaca: Cornell University Press, 1987), 22, 43, 162-3.

[14] James Lee Love, *The Lawrence Scientific School* (Burlington: The Author, 1944), i. Love maintains that the Lawrence Scientific School began graduate study in the sciences, teaching with extensive laboratory work, and major scientific research in Cambridge. Also, Bruce, *Launching of Modern American Science*, 163-4. For a good discussion of the Lawrence Scientific School, see Howard Smith Miller, *Dollars for Research, Science and Its Patrons in Nineteenth-Century America* (Seattle: University of Washington, 1970), 74-87. Miller also devotes a section to the Sheffield school, pp. 87-97.

[15] William S. Powell, *North Carolina Through Four Centuries* (Chapel Hill: University of North Carolina Press, 1989), 282.

[16] A survey party consisted of two assistant engineers, a draftsman, rodman, chainmen, and axeman. It is not known whether any of these men were UNC alumni.

[17] Allen W. Trelease, *The North Carolina Railroad, 1849-1871, and the Modernization of North Carolina* (Chapel Hill: University of North Carolina Press, 1991).

[18] Indeed, the University's Board of Trustees actually attempted to hire one of the engineers away from the railroad, but could not afford to pay his asking price.

[19] Minutes of the Board of Trustees, University Archives, University of North Carolina at Chapel Hill, ? June 1837. Henceforth cited as BOT.

[20] Minutes of the Executive Committee, University Archives, University of North Carolina at Chapel Hill, 29 June 1837. Henceforth cited as Ex. Comm.

[21] Minutes of the Faculty, University Archives, University of North Carolina at Chapel Hill, 16 Aug. 1838. Henceforth cited as Fac. Min.

[22] Ex. Comm., 4 Sept. 1838.

[23] University Papers, University Archives, University of North Carolina at Chapel Hill. Report of Charles Phillips on the School of Science as Applied to the Arts, 25 Nov. 1853. Henceforth cited as U. Papers.

[24] BOT, 12 Dec. 1842.

[25] BOT, 23 Dec. 1844.

[26] Wade Phillips Young, "A History of Agricultural Education in North Carolina," diss. University of North Carolina, 1934. R. H. Helme, *An Address Delivered Before the Agricultural Society of North Carolina at Raleigh, December 16, 1822* (Raleigh: J. Gales and Son, [1822]): 3-12.

[27] *Hillsboro Recorder*, 1 Feb. 1844.

[28] Ex. Comm., 1835-1873, pp. 112-113.

[29] *William S. Powell, Dictionary of North Carolina Biography* (Chapel Hill: University of North Carolina Press, 1991). Henceforth cited as *DNCB*. Also John V. Allcott, "Robert Donaldson, The First North Carolinian to Become Prominent in the Arts," *North Carolina Historical Review* 52:4 (1975): 333-366.

[30] Robert Donaldson to Swain, 30 Sept. 1845, U. Papers. Donaldson (UNC 1818) was a New York "capitalist" according to Battle (Battle, I, p. 789). Being displeased with his daughters for becoming Catholic, he left most of his estate to the University. The will was not valid.

[31] Donaldson to Swain, 6 Dec. 184[5], Swain Papers. There was a general movement toward the establishment of an agricultural society in Orange County beginning in 1822, but one was not formed until 1853, the same year that the School for the Application of Science to the Arts opened its doors. Wilkin, "The Promotion of Agriculture," pp. 16, 30, 32, 35.

[32] Swain to Donaldson, 28 Nov. 1843, Swain Papers.

[33] U. Papers, 25 Aug. 1845.

[34] Archibald Henderson, *Campus of the First State University* (Chapel Hill: University of North Carolina Press, 1949), 155-8.

[35] Davis to Swain, 9 March 1847, U. Papers. Swain and Mary Mitchell, daughter of Elisha, even traveled to New York to see Donaldson in June 1846 to discuss the new halls and grounds. This ducal gardener's arrival must have been considered quite important, as Donaldson traveled from New York to Chapel Hill in expectation of his appearance on the Hill. Lucy Battle to William H. Battle, 24 June 1846, Battle Family papers.

[36] Lucy Battle to William H. Battle, 9, 24, 30 March 1847, Battle Family Papers.

[37] Henderson, *Campus of the First State University*, 160-1.

[38] These two gentlemen did train slaves in their profession. One, Wilson Caldwell, the body servant of President Swain's son, Richard, became an expert gardener under the tutelage of Paxton. Henderson, *Campus of the First State University*, 161.

[39] It was not until a year before the establishment of the scientific school that there was a formal request for a botanic garden. The Board of Trustees referred this petition to the Executive Committee and it was never heard from again, BOT, 4 June 1851.

[40] BOT, 12 Jan. 1852.

[41] Fac. Min., 23 Jan. 1852.

[42] D. Mahan to "My Dear Sir," 5 Feb. 1852, U. Papers.

[43] Denison Olmsted to [?], [1852], U. Papers. Emphasis is in the original.

[44] U. Papers, document marked [1852] and signed, "E. Mitchell for himself and for Messrs Hubbard and Phillips." Mitchell was apparently the sole author of this report, although Professors Hubbard and Phillips served on the committee assigned to write it.

[45] Phillips's letter to Hedrick has been lost; however, Hedrick wrote home about this offer and the request for a study of the Lawrence Scientific School. Hedrick to "My Dear Ellen," 9 Feb. 1852, Hedrick Papers.

[46] Charles Phillips had been his math tutor.

[47] Bruce, p. 179.

[48] A. Hunter Dupree, *Science in the Federal Government: A History of Policies and Activities in 1940* (Cambridge: Belknap Press of Harvard University Press, 1957), 107-8. Hedrick is best remembered for the controversy surrounding his views on slavery. After stating his intent to vote for John C. Fremont (the antislavery candidate for president) in 1856 to a group of Carolina undergraduates, a small student melee occurred which was well-publicized and apparently blown out of proportion, but still managed to become a larger newspaper controversy. Hedrick, as a result, became the only professor at UNC (so far) to have his "chair declared vacant" due to his political opinions. For most of the remainder of his life he was employed by the chemistry division of the US patent office. *DNCB*.

[49] Hedrick to Ellen Thompson, 5 June 1851, Hedrick Papers.

[50] Ellen Thompson to Benjamin Hedrick, 26 Feb. 1852, Hedrick Papers.

[51] Hedrick to Ellen Thompson, 1 March 1852, Hedrick Papers.

[52] Ellen Thompson to Benjamin Hedrick, 8 April 1852, Hedrick Papers.

[53] Fac. Min., 27 Oct. 1852.

[54] A draft letter from Hedrick to "My Dear Sir," 9 Oct. 1852, Hedrick Papers.

[55] Hedrick to Swain, 13 Dec. 1852, U. Papers.

[56] BOT, 15 Dec. 1852.

[57] Phillips's students nick-named him "Old Fatty" due to his girth. Writing from Cambridge, Phillips joked that he was the biggest professor that he had seen in his travels—by at least 50 pounds. Charles Phillips to "My Dearest," 10 Oct. 1853, Charles Phillips Papers.

[58] Charles Phillips's memorialist noted, "the war came on when his powers were at their zenith and 'inter arma legesque silent.'" When UNC closed during Reconstruction, Phillips taught at Davidson College, returning to Chapel Hill with the University's reopening. His last years were spent battling debilitating gout.

[59] BOT, Charles Phillips to [?], 15 Dec. 1852.

[60] Ex. Comm., 29 Dec. 1852.

[61] Charles Phillips to William Horn Battle, 26 Jan. 1853, Battle Family Papers.

[62] Hedrick to [Charles Phillips], 12 Jan. 1853, Hedrick Papers.

[63] Charles Phillips to David Swain, 1 Jan. 1853, U. Papers.

[64] Charles Phillips to [Charles Manly], 15 Jan. 1853, U. papers.

[65] *Ibid.*

[66] *Ibid.*

[67] *Ibid.*

[68] *Hillsborough Recorder*, 16 Feb. 1853.

[69] Bruce, p. 179.

[70] Love, *The Lawrence Scientific School*, pp. 2-3.

[71] Henry Eustis, an 1842 graduate of West Point, became assistant to the Chief of Engineers of the Army following his graduation. Following four years of active military engineering, he returned to West Point as a professor of engineering in 1847, resigning after two years to teach the same subject at Harvard. There he organized the department of engineering in the Lawrence Scientific School, where he worked, with a brief interruption during the Civil War, for the rest of his life. *Dictionary of American Biography*, vol. 3 (New York: Charles Scribner's Sons, 1936), 192-3. Phillips described Professor Eustis as a "positive little fellow and of good temper but I reckon infected with the Boston disease—Vanity...."

[72] Charles Phillips to "My Dearest," 10 Oct. 1853.

[73] Charles Phillips to [James Phillips?], 12 July 1853, Cornelia Phillips Spencer papers. Hedrick would probably have joined Phillips in this conclusion as he had earlier reported back to his fiancee, following his observation of the 1851 Harvard's equivalent of Carolina's senior speeches, that "the students at Chapel Hill (that is the best ones) have a great deal more originality and vigorous thoughts, though do not affect so much learning." Hedrick to Ellen Thompson, 21 July 1851, Hedrick Papers.

[74] Charles Phillips to David Swain, 27 Aug. 1853, U. Papers.

[75] Charles Phillips to David Swain, 3 Sept. 1853, U. Papers.

[76] *Ibid.*

[77] Charles Phillips to Swain, 17 Sept. 1853, U. Papers.

[78] Francis Wayland, clergyman, educator, and fourth president of Brown University, was an 1813 graduate of Union College which had opened in 1795 and included in its original bylaws a provision that "those students who do not wish to go through the regular course of studies required in the college may be permitted to study select parts of science with either of the classes" (Guralnik, p. 37). Wayland studied medicine briefly before entering Andover Theological Seminary, after which he returned to his alma mater as a tutor. Following a brief stint as the pastor of the First Baptist Church in Boston, he became president of Brown in 1827, an office he held for the next 28 years. Under his leadership, Brown banished the textbook from the classroom, replacing recitations with the 'analytic method." In addition, he added courses in the modern languages, history, economics, and the natural sciences. In 1838, he was the leading proponent of the creation of a national university to be founded using the Smithsonian bequest. In 1842, he published *Thoughts on the Present Collegiate System in the United States* and eight years later, he totally reorganized Brown (after threatening resignation) in order to make it "more widely available and more distinctly contributory to the needs of society." Unfortunately, limited material resources made it impossible to implement all of his planned reorganization, among which was the addition of new subjects and a limited elective system. Dumas Malone, ed., *Dictionary of American Biography*, vol. 10 (New York: Charles Scribners, 1936), 559.

[79] Charles Phillips to David Swain, 3 Sept. 1853, U. Papers.

[80] Phillips complained to his wife that he was "tired of running after these folks—yet there is so much I want to talk to them about." In the same paragraph, he noted, "I spent an hour or two with president Sparks yesterday. I go there right often." Charles Phillips to "My Dearest," 10 Oct. 1853.

[81] Hedrick to "My Dear Sir," 30 Oct. [1853], Hedrick Papers.

[82] Charles Phillips to "My Dearest," 10 Oct. 1853, Charles Phillips Papers. He promised that "Mr. Hedrick and I will soon submit a rough project [?] of our school—one which if not adopted will perhaps do to lick into shape."

[83] Shortly after accepting the professorship of agricultural chemistry, Hedrick had jotted down a series of ideas in order to respond to a request for ideas regarding the establishment of the new school. On February 12, 1843, he suggested that the present course of study at Carolina be followed through the sophomore year and, beginning in the junior year, "all branches be elective so far as the student can select the course which he will pursue;" these courses he designated as "those who intend to study law," those who intend to study civil engineering," and "Those who intend to study the application of chemistry and medicine." (Hedrick, a draft of a letter, 12 Feb. 1853, Hedrick Papers, Duke University.) Three days later he refined his plan, suggesting students enter into a scientific school following the sophomore year. Without mentioning engineering, he provided a brief overview of his proposed arrangement of the new chemistry branch. "There [is] to be a laboratory in which those who desire it may be taught to analyze and perform all the experiments for themselves. The philosophy and the theoretical to be taught by lectures delivered from two to three times a week. This would constitute the

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study of [the] scientific course in the chemical department and would never be taken by a great many. Besides this I would [work?] during each term to give a course of about twenty lectures on agriculture chemistry and vegetable physiology." (Hedrick, draft of a letter to "My Dear Sir," 15 Feb. 1853, Hedrick Papers.)

[84] Fac. Min., 18 Nov. 1853.

[85] *Ibid.*

[86] The Report of Charles Phillips on the School of Science as Applied to the Arts, 25 Nov. 1853, U. Papers.

[87] *Ibid.*

[88] Fac. Min., 25 Nov. 1853. There is another, less detailed but essentially identical report (the difference being that both Phillips and Hedrick are assigned one subject each outside of the scientific school curriculum) in the University Papers. It is undated and is in the hand of Charles Phillips (Report of Charles Phillips marked "[1853]" in U. Papers).

[89] Phillips's Report to the Board of Trustees, Charles Phillips to David Swain, December 1853, U. Papers. Quotations that follow are from this Report

[90] BOT, 30 Dec. 1853. Although President of the University, Swain was generally called by the title of his onetime office, "Governor."

[91] *Catalogue of the University of North Carolina*, 1853-4.

[92] Of these partial course students, one was the chief Civil Engineer for the Western North Carolina Railroad, William I. Everett (1835-?); another became a professor in the medical college of Baltimore, James G. Lindsay (1836-1892); and one, Thomas D. Johnson (1842-1918), a physician who was a Confederate in exile, served in the Egyptian Army and was decorated by the Kedive of Egypt.

[93] Occupations are derived from the 1924 edition of the *Directory of the Alumni of the University of North Carolina* (Chapel Hill: General Alumni Office, 1924).

[94] The *Raleigh Standard* noticed the numbers of young men opting to take the scientific courses instead of law or languages in this year. "For instance, of the 49 seniors, 44 availed themselves of instruction in the scientific school during a part of their senior year. We hope to see the fruit of these teaching appear in the advancement of many of the highly important material interest of society. Too many of our young men go out from college not knowing what to do with what they have studied for four years. To be sure, much concerning the applications of theoretical truth cannot be learned in part of but one year; but that little is better than nothing, and after a while many of our young may be inclined to spend a fifth year at the University, and drink more deeply of the 'Pierian Spring.'" The scrapbook of Charles Phillips, North Carolina Collection, University of North Carolina at Chapel Hill.

Patterns of Access To The Modern European Universities: Rates of Enrollment

FRITZ RINGER

A relatively recent initiative in the history of higher education has been the attempt to measure the flow of students into the universities and related institutions in a systematic and internationally comparable way. One of the important statistical properties of a system of higher education is its inclusiveness, an inclusive system being one that is reached by a relatively large fraction of the population. Total university-level enrollments per population may serve as reasonable measures of inclusiveness. They are not internationally comparable, however, since the average duration of university study may vary from country to country. One way to get around this difficulty is to focus upon first-year enrollments, and to relate the number of entering students to the size of the most pertinent age-year within the population. Another method is to estimate the average duration of university attendance, and then to relate overall enrollments to the appropriate cluster of age-years. In either case, one arrives at a relative access rate or access percentage for the pertinent age cohort. Obviously, everything depends upon the quality of the available data. Since statistical sources are particularly rich for the Prussian/German system, the indicators for that system will serve as points of departure in the rest of this essay.

To approach systems of higher education in this quantitative way is to move away from the perspective of narrative history. The fate of individual institutions becomes marginal, and even system-wide legislative reforms and administrative innovations often recede into the background, proving less significant in their quantitative effects than they looked in conventional accounts of political and institutional developments. On the other hand, patterns emerge that demand new lines of analysis and raise new questions of their own. What are the major epochs and turning points in the evolution of university-level enrollments? Can short-term fluctuations in admissions be distinguished from long-term trends? What are the underlying causes of short-term variation, of relative stability, and of long-term growth in inclusiveness? How are quantitative changes in higher education related to other aspects of the social process? What similarities and differences emerge from cross-national comparisons of major quantitative indicators, and how can they be accounted for? While conclusive answers to these questions are not yet available, certainly not for all European university systems, I can briefly report some initial findings and hypotheses for selected countries.[1]

Of special interest for the history of higher education are recurrent periods of crisis in which contemporaries noted an 'overproduction' or 'excess' of university graduates in relation to suitable employment opportunities for them. This happened in several European countries, and possibly in all of them, during the 1830s and 1840s, during the

1880s and 1890s, and again during the interwar period, especially around 1930. There is some evidence that it also happened in some countries during the late eighteenth century, and even earlier. Contemporaries who observed this imbalance between the supply and the demand for graduates typically saw it as socially dysfunctional and dangerous. The term 'academic proletariat' was coined in Germany and much used in France around the end of the nineteenth century; but the phenomenon itself was older, and so was the fear that overeducated young people, typically from humble backgrounds, would make up an unproductive, alienated, and potentially subversive element in the population. Anxieties of this kind usually led to public warnings about long probationary periods and potential unemployment in the learned professions. At least in Germany, it also provoked bureaucratic initiatives to stiffen qualifying examinations and requirements, to channel secondary students away from the universities, and even (during the late nineteenth century) to reduce financial aid to needy students. The Prussian *Abitur*, the famous secondary leaving examination and certificate, was initially introduced in 1788 to control a supposed excess of unqualified university entrants. In 1834, again during a period of academic 'overproduction,' it was supplemented by a regulation that largely restricted university access to successful secondary graduates or *Abiturienten*. Such restrictive policies had the effects that were intended, at least in the short run. Moreover, even public discussions of over-crowding in the professions tended disproportionately to affect students from less favorable backgrounds, who were more easily dissuaded from risking academic unemployment than their wealthier colleagues. Recurrent crises of academic 'overproduction' thus tended at least temporarily to reduce the share of university entrants from the lower portions of the social scale.[2]

Working with excellent German data, Hartmut Titze has proposed a cyclical model of admission rates, in which phases of growth are regularly followed by phases of 'overproduction.' Growth stems from a reported demand for graduates in certain subject areas and professions. Since students need time to complete their studies, the demand seems to persist even after it has called forth increased rates of university *entry*, and these in turn produce higher rates of *graduation* even after the initial demand has been filled. Partly as a result of these fluctuations, moreover, the age structures of professions tend to become uneven, which can further aggravate the oscillation from opportunity to closure. Titze rightly emphasizes that the cyclical pattern is internally produced by the educational system itself; but one can also conceive additional impulses coming from such external sources as rapid changes in the size of age cohorts. Educational planners are almost certainly wrong to assume that such demographic changes are *fully* translated into fluctuations in admissions; for parents and teachers may unconsciously compensate for the reduced size of an age group, for example, by finding almost as many potential university entrants in it as in the larger cohort that preceded it. Despite such dampening 'compromises,' however, 'baby booms' must certainly be counted among the triggers of fluctuations in university access rates that will tend to perpetuate themselves in a cyclical way. If one further considers that

enrollment increases will raise the demand for trained teachers, one begins to appreciate the purely indigenous sources of quantitative variation within a system of higher education.[3]

As Titze notes, the cyclical waves in German admissions lasted for some 12 to 14 years; but they varied from subject area to subject area, depending at least partly upon the normal duration of university study in that area. The quality of the German data in fact permits Titze to specify the relationships between the supply of graduates, the number of openings and the lengths of waiting periods in specific academic and professional fields. Exact and convincing as his demonstrations are, however, they cannot fully resolve two sorts of questions. First, his model cannot predict, apart from direct observation, whether or not cyclical phases of 'overproduction' in different fields will *coincide* to produce more general crises of academic unemployment. One also has to ask to what extent students may be able and willing to change their fields in the light of professional prospects.

Second, Titze's approach is fully applicable only to systems in which a given course of study invariably prepares for a specific profession, or a narrow cluster of professions (the juridical civil service and the private practice of law, for example); it was in fact applied to such systems by the educational planners of the nineteenth century.[4] It would *not* be applicable to a system in which a general university education could serve as a preparation for an unlimited variety of occupations. On the other hand, an 'excess' of graduates might be perceived by contemporaries even in such an environment, and not without reason. For quite apart from the kind of calculations offered by Titze, *any* rapid increase in the output of graduates per age group may be expected to lead to a relative scarcity in the positions traditionally regarded as appropriate for them.

Historically, Titze's analysis is most appropriate for the early and mid-nineteenth century, and for such university systems as those of France and Germany (not England), in which access to the traditionally learned professions was linked to precise academic prerequisites, state examinations, and standardized professional credentials. Even in France and Germany, however, the enrollment increases of the late nineteenth century, and more markedly those of the interwar period, tended to loosen the links between particular qualifications and specific professions. The narrow circle of occupations taken up by university graduates began at that time to expand very slowly. Indeed, these relatively recent crises of academic 'overproduction' probably helped to destabilize the inherited social conventions about what positions were appropriate for the highly educated.[5]

In any case, the analysis of short-term fluctuations in university admissions must be supplemented by the study of long-term changes in levels of inclusiveness, to which we now turn. Table 1 brings together the most pertinent indicators for the German system from the eighteenth century to the interwar period. The figures through 1800 are estimated by Willem Frijhoff on the basis of Franz Eulenburg's survey of the unusually complete matriculation records of the time. Unlike earlier commentators,

Frijhoff has taken account of high rates of academic mobility among students of that era, which led to many multiple matriculations. His calculations of new matriculations per age group (both genders) suggest more moderate rates of inclusiveness than had previously been supposed. Yet as the table makes clear, Frijhoff still arrives at rates of university access in all of Germany around 1800 that were not equaled again until the twentieth century. (He also notes that the indicators for Prussia alone around 1800 may have been up to 60 percent larger.) Indeed, his ratios for the mid-seventeenth century are even higher than those for the early eighteenth century. He thus observes a long-term *decline* in university entries per age group that persisted through subordinate short-term fluctuations, and that became particularly rapid after 1740. Like other scholars before him, moreover, Frijhoff reports recurrent complaints about a perceived excess of graduates that became most insistent during the late eighteenth century, and that led to such deliberately restrictive policies as the Prussian *Arbitur* regulation of 1788. We will return to possible interpretations of this striking phenomenon a little later.

Table 1
Access to German Universities, 1700-1930

Date	Secondary Graduates as % of Age Cohort	Beginning Students as % of Age Cohort	Total Enrollments (x1000)	Students per Thousand Population	Students as % of 5-Year Age Cohort
1700		1.1			
1740		0.8			
1800		0.4			
1820-21				0.3	
1830-31			15.7	0.5	
1840-41			11.5	0.4	
1850-51			12.4	0.4	
1860-61			12.4	0.3	
1870-71	0.6	0.5	12.7	0.3	0.4
1880-81	0.8		21.9	0.5	0.6
1890-91	0.8	0.6	28.2	0.6	0.6
1900-01	0.9		34.3	0.6	0.7/1.0
1910-11	1.1	0.9	54.5	0.8	0.9
1920-21	1.3		86.9	1.4	1.2
1930-31	3.3		99.9	1.5	1.6/2.2

Not visible in detail in Table 1 is a recovery in German university enrollments that led to a new high in access rates per population in 1830-31, as shown in the table, and that accounts for renewed anxieties about an 'overproduction' of educated men during the 1830s and 1840s. After declining markedly during the 1830s, both absolutely and in relation to the population, enrollments reached a low plateau between 0.3 and 0.4 students per thousand population from about 1840 to 1870. Laments about academic overcrowding ebbed during these years, which suggests the hypothesis of an equilibrium between the supply and the demand for university leavers during the decades around the middle of the century.

From 1870 on, however, university enrollments per population and per age group increased once again until the First World War and beyond. The last two columns in the table adequately describe this renewed expansion; but they have two weaknesses. First, the average duration of university study apparently increased after 1870, from about 4 to around 5 years. The ratio of students to the *five-year* age group 19-23, which stems from very good Prussian and German data collected in a new handbook by Hartmut Titze, therefore tends to *understate* rates of university *entry* per age group until after 1870. Second, the table deals with the German universities alone. It thus neglects growing enrollments at the technical institutes (*technische Hochschulen*), which became quantitatively significant after 1870, and which gained nominal equivalence of standing with the universities in 1899. Also unlisted are a number of academies and other institutions, some of them considered of university level, which grew up from the late nineteenth century on. Around 1900-01, the universities alone accounted for roughly 68 percent of all university-level enrollments, and the technical institutes added around 22 percent, which left 10 percent for other institutions. As of 1930-31, the universities enrolled about 74-75 percent of all students, and the technical institutes added another 17-18 percent. Since average durations of study were almost certainly shorter at the non-university institutions of higher education than at the universities themselves, the indicators in the last column of Table 1 would have to be increased to around 1.0 in 1900-01 and 2.1 in 1930-31 to reflect first-year access to all university level institutions.

In any case, the German university system really experienced at least one and possibly two distinctive upward movements in enrollments after the plateau of 1840-1870. The first of these was a phase of moderate growth that extended from 1870 to the First World War and into the interwar period. During the 1880s and 1890s, renewed concerns arose about an 'academic proletariat,' so named during this period. Public debates about the accreditation of competing forms of secondary and higher education became extraordinarily heated. Efforts to restrict university access, while successful in the short run, ultimately failed to prevent further increases in levels of inclusiveness during the twentieth century. Indeed, the reflux of former soldiers into the German universities after the First World War, the great inflation of 1923, and the depression of the early 1930s led to unprecedented highs in enrollments that were only briefly interrupted after the currency stabilization of 1924. Beginning in 1933, the National

Socialists responded with draconian measures to reduce access to the universities, which particularly affected women. These controls promptly produced shortages of educated specialists and ultimately had to be abandoned. They thus only temporarily checked the very rapid growth in enrollments per population that began during the interwar period and that in other countries continued into the postwar era.

It should be noted in Table 1 that Prussian secondary graduates (*Abiturienten*) from 1870 on were generally more numerous, in relation to the age cohort, than German university entrants; but the differences were not great. The relevant figures include graduates of incompletely classical secondary schools (later named *Realgymnasien*) from 1860 on, and of the non-classical *Oberrealschulen* from 1880 on. The fully classical *Gymnasium* accounted for almost 90 percent of secondary graduates around 1870, and still just over 80 percent around 1900. Thereafter, as graduates of all secondary school types were admitted to the universities on nearly equal terms, the proportion of *Abitur* certificates held from a *Gymnasium* rapidly fell to two-thirds by 1911 and continued to decline thereafter. But even before the turn of the century, many graduates of the *Realgymnasien* and *Oberrealschulen* went to the technical institutes, which are not covered in the table. The share of secondary graduates who continued on to some form of university-level study after 1870 was therefore even higher than the figures in Table 1 suggest.

While the flow of students into the German universities during the nineteenth century can be charted with a fair degree of precision, there are few fully reliable and comparable data for France before the 1870s. The universities (really loose associations of faculties) that existed in France on the eve of the Revolution encompassed arts faculties that in theory prepared their students for the 'higher' faculties of theology, law and medicine. But much of the actual teaching of the arts faculties had devolved upon the *collèges*, only a fraction of which were actually affiliated with the arts faculties. The complete (full-program) *collèges* offered a classical secondary curriculum, along with a two-year terminal course in 'philosophy' that could be considered of university level. According to the best available estimates, students entering the 'higher' French faculties in 1789 were about 0.6 percent of eighteen-year-olds (or 1.2 percent of eighteen-year-old *males*).[6] Even without the philosophy students, this represents a fairly high level of inclusiveness as compared with Frijhoff's estimates of 0.4 percent of the age group (or 0.87 percent of the male age cohort) for new matriculants at all German universities, though it comes very close to the access rate he estimates for Prussia alone.

Of course the Revolution swept away the French universities of the old regime, along with parts of the secondary system—and a rich network of endowed scholarships.[7] In place of the old *collèges*, Napoleon created a system of public secondary schools (centrally financed *lycées* called *collèges royaux* under the monarchy, plus municipal *collèges*), which competed with private or confessional secondary schools (also called *collèges*). In the baccalaureate examination and certificate (*baccalauréat*) of 1808, he created a French equivalent of the German *Abitur*, which came to function

as a near-prerequisite for access to higher education and to the learned professions. The old French universities became institutionally separated faculties or 'schools.' Among them, the professional faculties of law, medicine, and pharmacy long remained much larger and more important than the faculties of letters and of sciences, heirs of the old arts faculties. The latter had virtually no students until late in the nineteenth century. They administered the baccalaureate examination; they certified future secondary teachers, testing them essentially on the secondary curriculum; and they provided popular lectures for amateur audiences.

It was not until the later 1870s and 1880s that the non-professional university faculties acquired regular students and offered serious post-secondary studies, and it was not until 1896 that the various existing faculties were drawn together to form regional 'universities.' The training of the Catholic clergy took place essentially in higher seminaries (*grand séminaires*). But far and away the most serious rivals of the French university faculties during the nineteenth century and thereafter were the famous *grandes écoles*, including the Ecole Polytechnique and the Ecole Normale Supérieure. Variously created during the later eighteenth and early nineteenth centuries, these very small elite institutions were primarily designed to train specialists for the various branches of the government service. An important exception was the Ecole Centrale des Arts et Manufactures, which was initially founded as a private school to prepare engineers and managers for French industry. The limited numbers of students the *grandes écoles* took in annually on the basis of competitive entrance examinations, usually after a year or more in special post-secondary preparatory courses, were boarded and educated at the expense of the state, generally during a three-year course. From the late nineteenth century on, additional non-university institutions of higher education were created, many of them in technical specialties, that are now also sometimes called *grandes écoles*. This background must be considered in any quantitative account of French university access during our period.

In a convincing critique of statistics initially put forward by the French Ministry of Education in 1843, Dominique Julia and Paul Pressly have suggested that the French public and private secondary schools enrolled roughly as many pupils in 1842 as the full-program *collèges* did in 1789. There was a shrinkage between 1789 and 1809; but it was largely compensated thereafter. Baccalaureate awards fell to just below three thousand in 1842, after having slightly surpassed that figure in 1820 and 1831. This suggests that complaints about an excess of educated men during the 1830s and 1840s had weaker quantitative foundations in France than in Germany. In the absence of meaningful data on university enrollments between 1789 and 1870, the rate of baccalaureate awards is particularly important. In Table 2, that rate is charted along with the ratio of university enrollments to the four-year age group 19-22, and both indices are confronted with comparable measures for Germany. Given a relatively stable number of baccalaureates between 1820 and 1842, along with an established university access rate of 0.6 for 1789, we can sustain the hypothesis of roughly constant levels of inclusiveness in French secondary and higher education during the early

nineteenth century. Until the end of that century, it should be noted, French baccalaureate awards were substantially more frequent, in relation to the age group, than university entries. Unlike the *Abitur*, clearly, the baccalaureate was fairly often held as a terminal degree during the nineteenth century. Apart from occasional highs and lows, the French baccalaureate rate grew steadily but slowly until the interwar period, when a rather rapid increase occurred. In France as in Germany, non-classical and semi-classical secondary schooling played a role, at least from the 1860s on. A 'special' or (later) 'modern' curricular stream developed within the existing *lycées* and *collèges*. From the late 1880s on, there were sharp debates about whether modern secondary graduates ought to be admitted to higher education. Though they were in fact placed on a nominally equal footing in 1902, the rate of baccalaureate awards remained relatively steady until the interwar period and even decreased a little in 1910-11. Nevertheless, an 'academic proletariat' was much decried in France as in Germany during the 1890s.[8] Apparently, larger proportions of secondary graduates were proceeding to the universities, where enrollments per age group increased substantially after 1880, especially during the later 1880s and the 1890s. The figures would be even more marked if the *grandes écoles* and similar technical schools were counted as well.

Table 2
Access to French and German Universities, 1840-1930

	France		Germany		
Dates	Secondary Graduates as % of Age Cohort	Students as % of 4-Year Age Cohort	Secondary Graduates as % of Age Cohort	Beginning Students as % of Age Cohort	Student as % of 5-Year Age Cohort
1842	0.5				
1854	0.7				
1865	0.9				
1870-71			0.6	0.5	0.4
1876	0.8	0.5			
1880-81		0.5	0.8		0.6
1886-87	1.0	0.6			
1890-91		0.8	0.8	0.6	0.6
1898-1901	1.2	1.2	0.9		0.7/1.0
1910-11	1.1	1.7	1.1	0.9	0.9
1920-21	1.4	2.0	1.3		1.2
1930-31	2.3	2.0	3.3		1.6/2.1

Comparison between the French and German figures in Table 2 indicates that throughout the second half of the nineteenth century, rates of secondary graduation were somewhat higher in France than in Germany. A French advantage in university enrollments per age cohort too can be reliably observed from 1890 on, especially if non-university institutions of higher education are considered as well. The German technical institutes were not considered of university level before the turn of the century, and they were not quantitatively as significant as has sometimes been assumed. In France, the leading *grandes écoles* outranked the university faculties in academic and social prestige, and they were joined by less highly accredited technical schools from the late nineteenth century on. The traditional assumption that higher education did more in Germany than in France to stimulate industrial development is in urgent need of reexamination. Indeed, the most important conclusion to be drawn from Table 2, especially in view of unavoidable imprecisions in the data, is that rates of access to higher education in France and Germany during our period were really very similar, and even developed in roughly comparable stages, at least until the interwar years.

A sketch of the English system is offered in Table 3. Secondary schooling in nineteenth century England took place entirely at private or 'independent' secondary

Table 3

Access to English and French Universities, 1700-1930
(in Percentages of Relevant Age Cohorts of Both Sexes)

Dates	Entries Oxford & Cambridge	English Universities	French Baccalaureate	French Universities
1700s	0.5			
1800s	0.2			
1810s-40s	0.3			
1850s-60s	0.2	0.2	0.8	
1870s	0.3	0.3	0.8	0.5
1880s	0.3	0.6	1.0	0.6
1890s	0.3	0.8	1.2	0.9
1901		0.7		1.2
1911		1.0	1.1	1.7
1921		1.4	1.4	2.0
1931		1.3	2.3	2.9

schools offering a classical curriculum, including the chartered 'public' schools, which typically boarded their students. The growth of 'maintained' grammar schools after the Education Act of 1902 affected a larger fraction of the age group. Yet 'public' and other independent boarding schools continued to control access to the two ancient Universities of Oxford and Cambridge. These were the only English universities until the founding of the University of London as an examining and degree granting institution in 1836. Beginning in 1851 and especially after 1870, a second tier of university-level institutions developed. These included 'university colleges' preparing for 'external' degrees from the University of London, a substantial cluster of higher technical, scientific, and medical schools also affiliated with London, and the so-called 'provincial' or 'red brick' universities, some of them former university colleges, which grew up especially between 1880 and the First World War.

The second column in Table 3 deals with entrants to Oxford and Cambridge. It may be considered a full measure of university access *in England and Wales* until the 1840s, and still a reasonably complete one around 1870. Thereafter, the rapid growth of the University of London network and of the 'red brick' universities quickly doubled English university enrollments per age group. A degree of caution is indicated, since the tabulated ratios encompass a substantial share of part-time students, especially before 1900. Nonetheless, it is worth noting that total English university access came fairly close to French (and German) levels during the late nineteenth century. The further growth of the English university system after 1900 was apparently slower than the expansion of the French university faculties during the same period. If one includes teacher training colleges, other (especially technical) institutions of further education, and very high university access rates in Scotland, however, the indicators of inclusiveness for all of higher education *in Great Britain* come to 1.2 percent of the age cohort in 1901 and 2.7 percent in 1924-25.[9] What primarily distinguished the English university system from its counterparts on the Continent, therefore, was the low rate of entry to the two older universities before 1850. With a joint access rate of 0.2-0.3 percent of the age group, Oxford and Cambridge lagged far behind the French and German systems. Much of the difference may have been due to the fact that in England, professional training for future lawyers and doctors took place, respectively, at the Inns of Court and at the teaching hospitals. Studies at the two ancient universities during the nineteenth century were predominantly classical and literary, with the addition of mathematics at Cambridge. One has to remember that the French faculties of letters and of sciences also had very few real students before 1870.

If the measures for Oxford and Cambridge during the early nineteenth century nevertheless stand out, it is partly because they contrast sharply with their own antecedents. Rates of entry to the two ancient universities apparently reached 1.0 percent in the 1630s, declined to 0.9 percent by the 1660s, and then fell sharply to 0.5 percent by the 1700s and 0.2 during the 1800s, recovering only slightly thereafter. If Lawrence Stone's estimates are correct, then the curve of university access dropped even more steeply in England than in Germany during the eighteenth century. One

begins to wonder whether a golden age of inclusiveness in European university education sometime during the seventeenth century or earlier was followed by a long-term decline that in England took on the character of a socio-cultural disaster. R. Chartier and J. Revel have questioned the thesis of an 'educational revolution' during the early modern period, which is not supported by scattered data for France and for a few other individual universities. Yet along with the well-documented case of Germany, some of the indicators for Spain and for the Netherlands suggest at least a moderate high in levels of inclusiveness before 1700, and a gradual, possibly irregular decline during the eighteenth century.[10]

For most European countries other than France and Germany during the nineteenth century, finally, Hartmut Kaelble has collected and calculated the indicators reproduced in Table 4. Total enrollments in universities and, in some cases, university-level institutions are here related to the *five-year* age group 20-24 (both genders). Since average durations of study probably came closer to four than to five years, the figures tabulated presumably understate university access rates by up to 25 percent. No one currently knows enough about all of these educational systems to make the data in Table 4 fully meaningful. Nevertheless, two general conclusions do suggest themselves. First, with a few deviations that may or may not reflect peculiarities of classification, the measures cluster around certain typical values, which are not far from the more reliably estimated figures for Germany in Table 1. With rare exceptions,

Table 4

University Enrollments per Age Cohort in European Countries (in Percentages of Five-Year Age Group 20-24)

Country	1840	1870	1880	1890	1900	1910
Austria	0.9	0.7	1.0	0.9	1.1	3.8
Belgium	0.5	0.7	1.0	1.0	0.9	1.3
England		0.4	0.6	0.7	0.8	1.3
Finland	0.3	0.4	0.4	1.1	1.2	1.2
Italy		0.5	0.5	0.8	1.0	1.1
Netherlands	0.6	0.4	0.5	0.7	0.7	1.1
Norway		0.7	0.5	1.0	0.7	0.8
Portugal		0.2	0.2	0.3	0.3	0.2
Scotland		1.4	1.9	1.8	1.4	1.9
Spain		0.9	1.0			1.2
Sweden	0.6	0.5	0.6	0.9	0.7	0.9
Switzerland			0.7	0.9	1.4	2.2

one could say, university access rates in the European countries around 1870 stood at about 0.4-0.7 percent of the five-year age group 20-24. Second, while there is no consistent evidence of growth between 1840 and 1870, levels of inclusiveness generally increased from 1870 on, reaching some 0.7-1.2 percent of the five-year age group at the turn of the century, with further moderate growth following up to the First World War. Considering the complexities involved, these are remarkably well-defined and consistent patterns. Only the Portuguese figures fall far below these norms, and the English percentages through 1870 would of course look low as well. In compensation, the indicators for Scotland before 1900 document a remarkably precocious development of university access that clearly deserves further attention.

We will have to be content with a sense of overall patterns, too, as we turn to the secondary preparation of entering students, the number of foreigners and of women among them, and their choice of faculty or subject area within the university, although we have already encountered a few specifics. While 'realistic' or 'modern' forms of secondary schooling developed in France and Germany from the 1860s on, the graduates of these programs and institutions were not generally admitted to the universities until the turn of the century. Until then, over 80 percent of German university entrants held the *Abitur* from a classical *Gymnasium*. In England, the classics were heavily emphasized not only at the nineteenth-century 'public' schools, but also at the other endowed or fee-supported grammar schools, and even at the 'maintained' grammar schools of the early twentieth century. Thus curricular differences at the secondary level never became as crucial and divisive in England as in France and Germany. On the other hand, the elite independent secondary schools supplied almost two-thirds of entrants to Oxford and Cambridge in 1902-04, and as we noted, they still accounted for a majority of matriculants at these universities in the 1930s.[11] In their own way, therefore, the independent boarding schools were the English counterparts of the German *Gymnasium* and the French *lycées*, especially those in Paris.

Foreign students were quite numerous in England, France and Germany during the late nineteenth century, and again during the interwar period. They made up the following percentages of all students.

	ca. 1900	ca. 1920	ca. 1930
Germany	7%		4%
France	6%	13%	11%
Oxford	8%		12%

The Swiss universities also attracted high proportions of foreign students, including talented women, who around the turn of the century found this one of the few ways to reach higher education at all.

The crucial developments in secondary and university education for women in France and Germany took place between 1890 and 1920. In France, girls' *lycées* and

collèges replaced the older 'secondary courses for girls' during the 1890s, and as early as 1901, women were three percent of students at French university faculties. In Germany, the 'higher girls' schools' of earlier decades were supplemented during the 1890s by courses preparing for the *Abitur*, even while a few women began to reach the universities, usually as auditors or special students. The establishment of fully accredited girls' secondary schools (*Lyzeen*) and unqualified university admission for women followed in the first decade of the twentieth century (in 1908 for Prussia). In England, change at least *began* somewhat earlier. A number of women's colleges were founded at Cambridge and Oxford between 1869 and 1879; the University of London allowed women to *graduate* in 1878, and the provincial universities were coeducational from their beginnings. At Oxford, women were admitted to university examinations in 1884, although admission to Oxford and Cambridge degrees did not follow until after the First World War.

The percentages of women among university students in some of the European countries between 1900 and 1930 are charted in Table 5. The very high figures for Switzerland before the First World War reflect the early importance of the Swiss universities for well-to-do women from a variety of European countries, especially from Russia. Thus, women made up some 35 percent of the student body at the University of Bern in 1903-04, but only about one in ten of these women were natives of Switzerland. The percentages for the British universities are more consistently remarkable. The French figures look strong as well, whereas significant progress for women in Germany did not come until around 1930, only to be retarded by the National Socialists shortly thereafter.

Table 5

Women Among University Students, 1900-1930
In Selected European Countries
(In Percentages of All Students)

Countries	ca. 1900	ca. 1910	ca. 1920	ca. 1930
Austria		8	14	17
France	5	9	13	26
Germany		4	9	18
Great Britain	17	19	27	26
Italy		17	20	15
Netherlands	7	14	15	18
Spain			4	7
Sweden	3	8	10	15
Switzerland	20	22	12	12

The decline in the proportion of women among Italian students between 1920 and 1930, too, was presumably a consequence of fascist policies. Beyond that, the indicators for Spain are particularly abnormal on the low side.[12]

The long-term trends in the distribution of students over the major faculties and subject areas in France and Germany is summarized in Table 6. For Germany, the most important developments were the relative decline of both Catholic and Protestant theology, and the rise of the humanities and natural sciences, or more simply of the faculties of 'philosophy.' Both trends were almost certainly characteristic of other university systems as well. For France, one should note the absence of Catholic theology (taught in the *grand séminaires*), the late emergence of the faculties of letters and of sciences, and especially the dominant position held by the faculties of law throughout the nineteenth and into the twentieth century. In the absence of strong faculties of arts and sciences, the French law faculties apparently took on a generalist function as well. Perhaps the traditions of the old judicial nobility contributed to this

Table 6

The Distribution of French and German University Students over the Faculties and Subject Areas, 1830-1914 (In Rounded Percentages by Column)

German Universities	1830-1860	1860-1890	ca. 1911
Theology	30	20	10
Law, Government	30	25	20
Medicine	15	20	20
Humanities	15	15	25
Sciences	5	10	15
Minor Fields	5	10	10
French University Faculties	**1850-1870**	**1870-1890**	**ca. 1911**
Law, Government	50	40	40
Medicine	25	35	25
Letters	5	10	15
Sciences	5	5	15
Minor Fields	15	10	5

pattern. As late as the 1860s, only about half of French law students intended to pursue legal careers.[13] From the late nineteenth century on, the French law faculties also offered courses in economic, political, and social studies, trying to broaden the training of future civil servants. In any case, no greater contrast can be imagined than that between the strength of the professional faculties in the French university of the nineteenth century and the curricular emphasis characteristic of Oxford and Cambridge at that time. Despite the emergence of new degree subjects, especially after 1870, the Oxford curriculum long remained predominantly classical, literary, and philosophical. Mathematics and the sciences were stronger at Cambridge, and the London system offered a variety of specializations in science, technology and medicine. Yet it was at Oxford and Cambridge, not at the German universities, that something like the Humboldtian preference for generalist studies survived into the twentieth century. That surely helps to explain why levels of inclusiveness in English higher education during the early nineteenth century lagged so far behind their French and German counterparts.

Having thus roughly charted the inflow of students and their distribution over the fields of study, at least in a few European systems, we must come back to some of the questions asked at the beginning of this chapter. What were the main causes of short-term and long-term changes in the pattern of university enrollments; what factors played a role in channeling students toward higher education or in keeping them away?

Catholics and religious dissenters could not enter Oxford before 1854, could not graduate at Cambridge before 1856, and could not take higher degrees at either of these universities until 1871. But this is the only absolute exclusion known to me. Of course the European universities generally charged tuitions or fees, at least until the interwar period; but one has the impression that the amounts were generally moderate, except where residential arrangements were involved, as in the colleges of Oxford and Cambridge. The direct costs of university study were reduced for many students from modest circumstances through 'free tables' and/or fee remission, through scholarships provided by religious and charitable endowments (especially in England), by individual patrons, or by the state (more likely on the Continent and after 1800). Patronage and aid to deserving poor students, especially candidates in theology, was an important social feature of European higher education during the early modern period and into the nineteenth century.[14] As of 1899-1900, some 16 percent of Prussian students at Prussian universities were on scholarships, 6 percent had access to free tables, and 17 percent had some sort of relief from fees; but the percentages should not be added up, since an indeterminate number of students received several forms of aid.[15] In general, however, it is not easy to assess either the costs or the opportunities for aid in a systematic way even for individual countries, not to mention cross-national comparisons.

Probably more important than university fees in their social effects were the direct costs of *secondary* schooling, which again were highest for such boarding institutions as the English 'public' schools and certain *lycées* and private or religious *collèges* in

France. The expenses of secondary schooling for rural and small-town families was of course much affected by the distance to the nearest full-program or lower secondary institution. Robert Palmer has shown that the state scholarships established by Napoleon collectively provided less student support than the foundations and endowments of the pre-Revolutionary period, even apart from the fact that nineteenth-century French state scholarships often went to the offspring of deserving minor officials.[16] The special courses offered at the great Parisian *lycées* to prepare candidates for the entrance examinations to the *grandes écoles* probably functioned as serious economic barriers, especially for youngsters from the provinces with less than outstanding academic records. Again, I know of no systematic or comparative studies of secondary costs and opportunities. Yet it is my impression that the average direct cost of secondary schooling was somewhat higher in England and France than in Germany, where a relatively dense network of non-residential schools, including lower secondary schools, probably made access comparatively inexpensive.

At the same time, the direct costs of higher education and of secondary schooling may not have been the decisive factors in determining access to the universities. The *indirect* costs of withholding young people from the labor market for extended periods were probably more important. After completing their university studies, candidates for the academic professions, especially law and medicine, typically faced years of unpaid internship, even if a scarcity of openings did not further extend probationary periods. In Prussia, and more generally in countries with strong meritocratic and statist traditions from the eighteenth century on, efforts to control standards in the bureaucracy and in the learned professions gave rise to complex systems of formal qualifications that were generally more demanding in the juridical civil service and in the liberal professions than in theology and in secondary teaching.[17] The indirect costs of obtaining these qualifications inevitably affected family strategies, and of course reports of overcrowding in the professions had to be taken seriously as well. In relation to the overall pattern of indirect costs, therefore, tuitions and fees were probably not decisive. We know that the abolition of fees in French secondary education between 1928 and 1933, for example, did *not* occasion an immediate increase in first-year secondary enrollments.[18]

Very significant, on the other hand, were the institutional and curricular barriers that separated primary and post-primary schooling from fully accredited secondary education, and from such crucial qualifying examinations as the German *Abitur* and the French baccalaureate. More than anything else, it was the structure and curriculum of the secondary systems that truly regulated access to the universities. I have repeatedly called attention to the social importance of *segmentation* in late nineteenth-century European secondary education. It can be empirically observed and even exactly measured where divergent 'streams' or 'tracks' within the secondary system catered to different social groups. The differences of accreditation between the fully classical *Gymnasium* and the less prestigious branches of German secondary schooling may serve as an example of segmentation, and so may the comparable divergences between the classical and 'modern'

secondary streams in France after 1860. Hilary Steedman has suggested that in England, such non-curricular differences among schools as distinctive modes of socialization played a similar role. Educational segmentation, especially at the secondary level, tended to perpetuate socio-cultural or *status* distances within the population. The status order they fostered and sustained was not necessarily congruent with the existing hierarchy of wealth and economic power, as Max Weber pointed out. In Pierre Bourdieu's terminology, the distribution of 'cultural capital' was not simply identical with the distribution of 'economic capital.' Nevertheless, the cumulative effect of educational segmentation was to legitimate and to enhance class differences.[19]

Without further developing this subject, I want here simply to indicate how the segmentation of secondary systems could affect family strategies with respect to higher education. As French educational reformers of the late nineteenth century liked to point out, an independent artisan, shopkeeper, or small businessman might hesitate to risk the indirect costs of classical secondary schooling for his son, since what the youngster learned in a classical school would be of use to him only if he earned good grades and completed the course. If he fell short of that, he would bring back little that could help him in the family business. It was therefore economically rational to opt for a non-classical and practically oriented secondary program, if it was available, especially if the focus upon the ancient languages in the classical stream was early and exclusive. At the same time, more purely emotional barriers also tended to keep pupils from modest backgrounds out of the most highly accredited secondary schools. The esoteric culture they represented might seem vaguely forbidding; to enter them was to risk the psychic costs of moving upward into a partly alien world. To some degree, at least, the less favored social groups thus tended 'voluntarily' to exclude themselves from the surest paths to the universities.

On the other hand, once pupils actually reached the secondary system, for whatever reasons, a new set of forces could begin to act upon them. Thus teachers might encourage promising students from modest backgrounds to imagine possibilities not initially envisaged by their parents. With every year that pupils spent in school, moreover, it made more sense for them to stay until graduation. The result was a gradual but recurrent upward extension of initially lower secondary courses and a consequent increase in the share of secondary graduates. In such curricular streams as the French 'special' or (later) 'modern' secondary program, moreover, an originally 'practical' orientation tended progressively to give way to a more 'generalist' and academic emphasis ('generalist shift'). Against the explicit intentions of educational planners, the program took on many of the characteristics of the most prestigious secondary stream. In the meantime, teachers and parents ever more urgently demanded fully equal accreditation and access to the universities, which the clients of the more established schools or programs naturally opposed. Thus it is possible to identify both exclusionary and inclusionary pressures within the segmented European secondary systems of the nineteenth century, and hence also to understand the educational conflicts that took place, at least in France and Germany, during the decades after 1870.

The other main influence upon the flow of secondary students into the universities that has to be considered is the social 'demand' for university graduates. The concept of demand itself is problematic in some respects. We usually know only the 'supply' of university students, and our sense of the 'demand' tends to be indirect and even speculative. It would obviously be circular to infer the demand from the supply, and then cite the demand to 'explain' the supply. Yet we have already discussed instances in which a short-term, cyclical deficit in the demand for graduates can be either documented or reasonably assumed, if only because a sudden increase in enrollments presumably confronted a relatively stable demand for educated professionals. When the 'special' secondary program was created in France during the 1860s, moreover, the response in increased secondary enrollments was so immediate and pronounced that the prior existence of a social demand can fairly be posited. But the analytical problems become much more difficult where long-term secular changes in university access are at issue. Can our understanding of short-term imbalances between the supply and the demand for university education be extended to these cases? We have come back in fact to some of the questions that were posed at the beginning of this essay, and that also have to do with the major phases in the development of access to the European universities. Are we now in a position to address these questions in a conclusive way?

It strikes me that we still do not know why the inclusiveness of university systems declined substantially in several European countries, including England and Germany, during the eighteenth century. It may be true that the decline was uneven, accompanied by cyclical fluctuations similar to those analyzed by Titze; yet I do not see how our model of short-term deficits in the demand for graduates can simply be transferred to explain a trend extending over a century or more, as Chartier and Revel seem to have done.[20] If decreases in demand were involved, then these were long-term shrinkages that must be explained in terms of corresponding changes in state bureaucracies, in clerical and educational establishments, or in the educated professions, and no such structural transformations have been documented. Chartier and Revel speculate that European societies may have become more rigid, closed to all but small minorities. But this in effect assumes what has to be explained, namely a long-term decline in inclusiveness. How did it come about? The partial or total replacement of university arts faculties by *Gymnasien*, *collèges* and other non-university institutions must not be overlooked, of course; but it may not fully account for the quantitative shifts that apparently occurred.

The development of university access between 1800 and 1870 needs only a brief review. In Germany, enrollments first climbed to a peak at 1830-31, then declined for a decade, to reach a low plateau of constant inclusiveness, in relation to the age group, that lasted until 1870. The high point at 1830-31 coincided with complaints about an 'excess' of educated men that was heard in several other countries as well. It perfectly fits the pattern of a short-term deficit in demand, particularly in light of the modest and stable access rates that followed. As Table 4 indicates, relatively stable indicators of inclusiveness, ranging from 0.4 to 0.7 percent of a five-year age group, actually

obtained in most European countries during the decades around the mid-century. Deviations from this pattern in England and elsewhere are presumably subject to separate explanation. An interesting recent study of *inscriptions* (not enrollments) at Belgian universities by Jan Art also points to a short peak at 1828-31, a setback thereafter, and a period of very modest increases until about 1870.[21] I have proposed the hypothesis of an early industrial equilibrium in the supply and the demand for graduates, which reflected stable access to the traditionally learned professions, rather than to positions directly associated with the developing economies. I have also noted that during the nineteenth century, university access rates seem to have varied *inversely* with economic cycles. Art has seconded this tentative observation, which suggests that university study served to some degree as an *alternative* to business careers. One really has to imagine two distinctive arenas of middle-class opportunity. One of them was linked to industrialization and to the accumulation of economic capital, which often took place without benefit of university education. The other was associated with the minor and major educated professions, including the civil service in Prussia and elsewhere on the Continent, and thus with the pursuit of educational qualifications or of 'cultural capital.'

After 1870, the situation became very much more complicated. On the one hand, a further short-term cycle of academic 'overproduction' has been most concretely documented for Germany by Titze, but it apparently occurred in France as well. Perhaps it was aggravated by the 'great depression' that began in the late 1870s. On the other hand, more long-term structural changes were taking place as well. Focusing particularly upon German secondary education, Detlef Müller has characterized these changes as a process of 'systematization.' In early nineteenth-century Prussia, he argues, the *Gymnasium* enrolled a good many pupils who were *not* preparing for university entry, but left school early to pursue a variety of non-graduate occupations. This brought pupils from modest backgrounds into the secondary schools, where some of them were ultimately encouraged to complete their studies and continue on to the universities. The potentially progressive effects of this pattern were undercut, however, as various curricular options were more sharply defined and separated from each other. From the 1860s on, and especially late in the century, in fact, the boundaries between different types of secondary schools were ever more rigorously defined; curricula and graduate qualifications were meticulously specified, and the functional relationships among the different parts of the total system were fully articulated. Systematization was partly a form of bureaucratic rationalization, but it was also a conflict-ridden exercise in social demarcation. The former early leavers were in effect channeled away from the *Gymnasium*, into the *Realgymnasium* and the *Oberrealschule*, which long remained incompletely accredited. In France and England too, a process of systematization can be detected, as an essentially binary pattern of elite secondary and popular primary schooling was replaced by a more complex hierarchical structure of elite university-preparatory, non-elite secondary, and higher primary schooling.[22]

In my terms, the segmentation of French and German secondary education became particularly marked after 1870, *not* before then. During fierce debates over the accreditation of classical and 'modern' curricular streams, educational conservatives became quite explicit about their socially exclusionary intentions. Yet along with an exclusionary dynamic, inclusionary pressures were at work as well. Most visibly in France, the emergence and growth of a nonclassical secondary curriculum also brought new social groups into the secondary system. As the non-classical option underwent a generalist shift and took on a more academic character, its sponsors sought university access for its graduates, and they could not be put off forever. Around the turn of the century, the graduates of all full-length secondary programs were admitted to university study on largely equal terms, not only in republican France, but in monarchical Germany as well. Rates of secondary graduation and of university entry, though temporarily checked, eventually increased until the First World War and beyond.

In higher education after 1870, while access rates increased at the universities themselves, newly created universities (in England) were joined by certain non-university institutions of higher education, many of them technical and professional schools, that gradually achieved equality of accreditation with the universities. One way to describe the expansionary developments of this period is to point out that they brought secondary and higher education into closer interaction with the occupational system of the high industrial era. Primarily involved on the side of the occupational system were certain younger professions, especially in science and technology, that came to be more educated than their early industrial precursors, yet arguably more relevant to commerce and industry than the older liberal and learned professions. The changes taking place should not simply be regarded as educational adjustments to the 'needs' of the economy. Social and political issues were at least as important as economic considerations in the education debates of the time. Moreover, the elaborate hierarchy of educational qualifications that defined civil service ranks in late nineteenth-century Prussia almost certainly did more to shape the wider occupational system than the reverse. Thus the sectoral convergence between the educational and occupational systems was a genuinely *interactive* one. With little exaggeration, one could speak of an educationalization of the economy, rather than an industrialization of education. In any case, there can be no question that the short-term disequilibria analyzed by Titze were accompanied during this period by structural changes that led to long-term increases in the demand for university graduates. There is no other way to account for the increases in inclusiveness that actually took place, and that in most European countries brought university access rates to around 0.7-1.2 percent of a five-year age group before 1914.

At some point, one has to recognize, a continuing increase in rates of graduation, and even an 'oversupply' of graduates, will tend to create an expanded 'demand' for them, in that new occupations will seem to 'require' university-level education. Something like that has certainly happened in most European systems since the Second World War. Increasingly, higher education has become a necessary but not sufficient

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condition of employment in the higher regions of the late industrial white-collar hierarchy. There has been an 'inflationary' devaluation of academic credentials as social assets. But it is possible that this new phase in the history of university access, this further convergence between the educational and the occupational systems, really began during the interwar period, as women entered the secondary schools and universities in significant numbers, as middle-class reformist and moderate socialist parties gradually reduced the barriers between primary and secondary schooling, and as short-term enrollment booms helped to undermine the established expectations about the educational levels appropriate for various occupations.

Hartmut Kaelble has suggested a long-term and not precisely datable evolution of European educational opportunities between the late eighteenth and early twentieth centuries from a 'charitable' to a 'competitive' period, and from there to the epoch of the 'welfare state.'[23] There is a rough parallel between his three stages and what I have called the 'early industrial,' the 'high industrial,' and the 'late industrial' phases in the history of higher education, especially with respect to the changing relationship between the educational system and the economy. But Kaelble also points to something else, and something very important. During the late eighteenth and early nineteenth centuries, a pervasive expectation of status persistence was nevertheless accompanied by an acceptance, even an active sponsorship, of individual mobility through education for talented poor students seeking to enter the clerical and teaching professions. Somehow, during the course of the nineteenth century, this pattern was replaced not only by sharp competition for educational places, but also by a popular pursuit of educational opportunities on the one hand, and a conservative determination to limit university access, on the other. Vaguely to sense so broad a shift is of course not to explain it; but then we are still some distance away from fully understanding the main stages and dynamics involved in the evolution of access to nineteenth-century European higher education.

We still have much to learn, too, about the social origins of university students, about the more or less 'democratic' or socially progressive character of educational systems, and about the highly *problematic* relationship between increased access rates and social mobility in modern European educational systems. I propose to address some of these issues in the next issue of this journal.

NOTE TO TABLE 1

Figures through 1800 are from Willem Frijhoff, 'Surplus ou déficit? Hypotheses sur le nombre réel des étudiants en Allemagne à l'époque moderne (1576-1815),' *Francia: Forschungen zur westeuropäischen Geschichte*, vol. 7 (1979), pp. 173-218. Figures for Secondary Graduates (*Abiturienten*) per 19-year-olds in 1921 and for beginning students per age cohort in 1870 and 1931 are from Ringer, *Education and Society*, Appendix Tables I, V. All other data are taken or calculated from Titze, *Hochschulstudium*. Only universities are considered, and age cohorts are for both genders. Figures for 1830-31, etc., are almost always averages for winter semester

1830-31 and summer semester 1831, etc. (and for population 1830 and 1831, etc.). Enrollments per population in 1820-21 and secondary graduates per age group through 1910-11 are for Prussia only. Beginning students per cohort for 1870-71 are in fact total enrollments per *four-year* age group 20-23; for 1890-91 and 1910-11, first-year students are related to one-fifth of the five-year age group 19-23. The results suggest that from 1890 on (not through 1870), the university access rate was close to the ratio of enrollments to the five-year age group 19-23 used by Titze and in the last column of the table. The figures added after slashes in that column for 1900-01 and 1930-31 include students at technical institutes and other non-university institutions of higher education (with durations of study probably closer to 4 than to 5 years). Foreigners among German university students (included in the table) were some 7-8% from the 1890s to the First World War and again in the mid-1920s, after which the proportion declined to around 4% during the early 1930s.

NOTE TO TABLE 2

The data are taken or calculated from Table 1 and from Ringer, *Education and Society*, app. tables I-XI, which are based on published government statistics. Baccalaureate figures are percentages of 17 year-olds of both genders. French university enrollments are related to the *four-year* age cohort 19-22 (both genders), which may slightly *understate* university access through 1880, while slightly *overstating* it for the interwar period. French non-university institutions of higher education (*grandes écoles*, higher seminaries, and certain higher technical schools) are not covered in the table, but may be roughly estimated to have enrolled 10-15% as many students as the university faculties. Foreigners among students at French universities increased from 6% in 1901 to 13% in 1911 and (again) in 1921, and 22% in 1931. The apparent excess of university access over the baccalaureate rate from 1900 on is due to increased durations of study, to foreign students, and to students reaching some faculties (as non-degree or special students) without the baccalaureate. See also Paul Gerbod, 'La catégorie étudiante en France depuis 1870,' *Paedagogica Historica*, XXI/1 (1981), pp. 93-110.

NOTE TO TABLE 3

Decennial average freshman entries per age group (both genders) at Oxford and Cambridge are calculated from estimates in Lawrence Stone, ed., *The University in Society*, vol. I: *Oxford and Cambridge from the 14th to the Early 19th Century* (Princeton, 1974), pp. 91-92, 103, and from B. R. Mitchell, ed., *Abstract of British Historical Statistics* (Cambridge, 1962); the age group figures used were for England and Wales. Stone's figures for the early seventeenth century suggest rates of entry to Oxford and Cambridge near 1% of the age group. Enrollments at universities in England and Wales, including some part-time students, for the years 1861, 1871, etc. are taken

from Roy Lowe, 'The Expansion of Higher Education in England,' in Konrad Jarausch, ed., *The Transformation of Higher Learning, 1860-1930* (University of Chicago Press, 1983), pp. 37-56, esp. p. 52; but Lowe's figures have been adjusted (increased) to reflect an assumed four-year (not five-year) duration of study, which also makes for greater comparability with the French data. As late as 1961, 54% of students from the U. K. entering Oxford and Cambridge came from 'independent' schools. See also Ringer, *Education and Society*, pp. 220-230. For French figures, see note to Table 2.

NOTE TO TABLE 4

From Hartmut Kaelble, *Soziale Mobilität und Chancengleichheit im 19. und 20. Jahrhundert* (Göttingen: Vandenhoeck & Ruprecht, 1983), pp. 200-202. Definitions of university-level education vary somewhat from country to country, and some figures listed pertain to years somewhat earlier or later than the headings. Austrian figures through 1900 are for the Empire, thereafter for the territory of the future Republic. England includes Wales. The remarkable figures for Scotland (1871, 1881, etc.) are calculated from R. D. Anderson, *Education and Opportunity in Victorian Scotland* (Oxford: Clarendon, 1983), pp. 351, 357, and from Mitchell, *Abstract*.

NOTE TO TABLE 5

From Kaelble, *Soziale Mobilität*, pp. 222-224; but figures for Great Britain ca. 1900-1910 in fact pertain to England and Wales and are taken from Janet Howarth and Mark Curthoys, "The Political Economy of Women's Higher Education in Late Nineteenth and Early Twentieth-Century Britain," *Historical Research*, vol. 60 (1987), pp. 208-223, esp. pp. 210-211. German and French figures are virtually identical with data in Titze, *Hochschulstudium*, and Ringer, *Education and Society*. A few dates vary up to two years around those listed. Some non-university institutions of higher education are included for Austria and for the Netherlands, in both cases from 1910 on.

NOTE TO TABLE 6

From Ringer, *Education and Society*, pp. 60, 149, based on app. tables V, XI. All percentages are approximate, intended to represent long-term trends only. For Germany, no distinction is made between Catholic and Protestant theological faculties; Law and Government encompasses the cameral sciences or *Staatswissenschaften*; Humanities refers to the *Geisteswissenschaften*, which were typically grouped with the natural sciences in the Faculties of Philosophy; Minor Fields includes pharmacy and agriculture. *For France*, the Faculties of Law in fact offered some of the specialties called *Staatswissenschaften* in Germany; Minor Fields really means Pharmacy; the figures for 1850-1870 are based on degree awards, not on student enrollments.

ENDNOTES

[1] Unless otherwise specified, the analysis will be based on Fritz K. Ringer, *Education and Society in Modern Europe* (Bloomington, 1979); with respect to system-wide quantitative data on German universities, however, *Education and Society* has been superseded by Hartmut Titze, ed., *Das Hochschulstudium in Preussen und Deutschland 1820-1944* [*Datenhandbuch zur deutschen Bildungsgeschichte*, vol. I: *Hochschulen*, part 1] (Göttingen: Vandenhoeck & Ruprecht, 1987). See also George Weiss, *The Emergence of Modern Universities in France, 1863-1914* (Princeton, 1983).

[2] Lenore O'Boyle, "The Problem of an Excess of Educated Men in Western Europe, 1800-1850," *The Journal of Modern History*, vol. 42 (1970), 471-495; Hans-Georg Herrlitz and Hartmut Titze, "Überfullung als bildungspolitische Strategie," *Die deutsche Schule*, vol. 63 (1976), pp. 348-369; Detlef K. Müller, "Qualifikationskrisen und Schulreform," *Zeitschrift fur Padagogik*, suppl. 14 (1977), 13-35; Detlef K. Müller et al., "Modellentwicklung zur Arialyse von Krisenphasen im Verhältnis von Schulsystem und staatlichem Beschäftigungssystem," *Zeitschrift fur Padagogik*, suppl. 14 (1977), 37-77; Detlef K. Müller, *Sozialstruktur und Schulsystem: Aspekte sur Theorie und Praxis der Schulorganisation im 19. Jahrhundert* (Göttingen, 1977), esp. 274-280.

[3] Hartmut Titze, "Die zyklische Überproduktion von Akademikern im 19. und 20. Jahrhundert," *Geschichte und Gesellschaft*, vol. 10 (1984), 92-121. See also Ringer, *Education and Society*, 49-50, 141-142, 327-328.

[4] In addition to German examples cited by Müller and by Titze, the French Minister of Education Villemain's report of 1843 is a good example. See Ministere de l'Instruction Publique, *Rapport au Roi sur l'instruction secondaire* (Paris, 1843), esp. 61-63.

[5] There is some evidence that the 'academic proletariat' of the Weimar period for the first time included substantial numbers of university graduates who took jobs as ordinary business employees. See Ringer, *Education and Society*, 98-100.

[6] Roger Chartier, Dominique Julia and Marie-Madeleine Compère, *L'Education en France du XVIe au XVIIIe Siècle* (Paris, 1976), 249-297 (written by Compère), esp. 273-276, 292; see also 294, note 7; Roger Chartier and Jacques Revel, "Université et société dans l'Europe moderne: position des problèmes," *Revue d'histoire moderne et contemporaine*, vol. 25 (1978), 353-374, esp. 366-368.

[7] R. R. Palmer, "Free Secondary Education in France before and after the Revolution," *History of Education Quarterly* (1974): 437-452.

[8] The controversies over modern secondary education and over the 'academic proletariat' in France are analyzed in Fritz Ringer, *Fields of Knowledge: French Academic Culture, 1890-1920, in Comparative Perspective* (Cambridge University Press, 1992), esp. chapters 2-3.

[9] More on this in Ringer, *Education and Society*, 228-230, which draws on Great Britain, Committee on Higher Education, *Higher Education: Report of the Committee... under the Chairmanship of Lord Robbins* ('Robbins Report,' London, 1961-63).

[10] Chartier and Revel, "Université et société," esp. 363-369, including for estimates of Spanish access around 1659 and 1700; Richard L. Kagan, "Universities in Castile 1500-1810," in Stone, *University in Society*, vol. 2: *Europe, Scotland and the United States from the 16th to*

the 20th Centuries (Princeton, 1974); Dominique Julia, Jacques Revel, Roger Chartier, eds., *Les Universités européennes du XVIe au XVIIIe siècle: Histoire sociale des populations étudiantes*, vol. I (Paris: E.H.E.S.S., 1986), esp. the essays by Kagan on Italy, Peset and Mancebo on Spain, and Frijhoff on *university graduates* in the Netherlands, which seem to have fluctuated in a cyclical way, with highs around 1660 and again a century later.

[11]See M. G. Brock and M. C. Curthoys, eds., *History of the University of Oxford*, vol. 7 (forthcoming), including for some of what follows. I want to thank Mark Curthoys for help with the British data.

[12]See esp. James C. Albisetti, *Schooling German Girls and Women: Secondary and Higher Education in the Nineteenth Century* (Princeton, 1988), 204-305, esp. pp. 297-301; Simonetta Ulivieri, "Women and the University Studies in Italy," *Higher Education and Society in Historical Perspectives [7th International Standing Conference for the History of Education]*, vol. I (Salamanca, 1985), 658-667; Jill Stephenson, "Girls' Higher Education in Germany in the 1930s," *Journal of Contemporary History* 10 (1975): 41-69.

[13]George Weisz, "The Politics of Medical Professionalization in France 1845-1848," *Journal of Social History* 12 (1978-79): 3-30, esp. 28. See also Weisz *Emergence of Modern Universities*, 188-189 for what follows.

[14]For a vivid portrait of the circumstances and ethos of poor theology students in eighteenth-century Germany, see Anthony J. Lavopa, *Grace, Talent and Merit: Poor Students, Clerical Careers, and Professional Ideology in Eighteenth-Century Germany* (Cambridge University Press, 1988).

[15]Titze, *Hochschulstudium*, 282; unfortunately, these detailed data are available only for the Prussian universities between 1886-87 and 1911-1912.

[16]Palmer "Free Secondary Education."

[17]See for example Peter Lundgreen, "Zur Konstituierung des 'Bildungsbürgertums:' Berufs- und Bildungsauslese der Akademiker in Preussen," in Werner Conze and Jurgen Kocka, eds., *Bildungsbürgertum im 19. Jahrhundert*, part I: *Bildungssystem und Professionalisierung in internationalen Vergleichen* (Stuttgart: Klett-Cotta, 1985), esp. 79-89.

[18]Ringer, *Education and Society*, 141-142, 327-328.

[19]Along with Ringer, *Education and Society*, esp. 12-22, 28-30, see Detlef K. Müller, Fritz Ringer and Brian Simon, eds., *The Rise of the Modern Educational System: Structural Change and Social Reproduction 1870-1920* (Cambridge University Press, 1987), esp. the Introduction (Ringer), Chapter 2 (Ringer), and Chapter 4 (Hilary Steedman).

[20]See note 9 above.

[21]Jan Art, "Les Rapports triennaux sur l'état de l'enseignement supérieur: un arrière-fond pour des recherches ultérieures sur l'histoire des élites belges entre 1814 et 1914," *Revue belge d'histoire contemporaine*, vol. XVII (1986), 187-224.

[22]Müller, Ringer and Simon, *Rise of the Modern Educational System*, esp. Chapters 1 (Müller) and 3 (Simon).

[23]Kaelble, *Soziale Mobilität*, 172-176.

Selected Recent Dissertations in the History of Higher Education

As a new service, the *Annual* with this volume has begun to publish notices of selected recent dissertations in the field. These studies are one of the principal sources of new scholarship in the history of higher education. All too often, however, this work escapes notice, primarily because little of it seems to become the basis for subsequent publications. All readers of the *Annual* can assist the task of giving these studies greater publicity. Please encourage recipients of doctorates in the history of higher education to send me an abstract of their dissertation for possible inclusion in this section.

The dissertations listed here are from titles supplied by UMI Dissertation Services, and copies of most can be ordered by calling 800-521-0600, extension 3785. The abstracts have been abridged (with apologies to the authors) to convey the general thrust of the study. Since these titles were compiled from a key-word search, relevant titles may have been overlooked—something I hope can be rectified in the future by having authors send their abstracts to the *Annual*.

R.G.

Beach, Mary Framptom. *An Analysis of the Dartmouth College Case and Its Impact on the Founding of American Colleges and Universities Between 1819 and 1839.* Boston College, Ph.D., 1990, pp: 175.

Order No. AAC 9015780.

This study analyzes the impact of the Dartmouth College case on the founding of American colleges and universities between 1819 and 1839. Data were derived from a comparison of 31 institutional charters issued before 1819 and 40 charters issued to colleges between 1819 and 1839. Patterns of state involvement in higher education and changes in chartering patterns after the 1819 decisions are identified.

Bernard, Paul Roger. *The Making of the Marginal Mind: Academic Economic Thought in the United States, 1860-1910.* The University of Michigan, Ph.D., 1990, pp: 296.

Order No. AAC 9034385.

This dissertation examines the ways in which economists formulated their theory and their conception of the discipline during the late 19th century. It focuses on Francis Bowen, Charles F. Dunbar, F.W. Taussig, J. Laurence Laughlin, William Graham Sumner, Arthur T. Hadley, Francis A. Walker, Richard T. Ely, Henry Carter Adams, Simon Patten, E.J. James and John Bates Clark, men who assumed a central role in the formation of departments of economics at major universities and in the

professionalization of the discipline. Neo-classicism became the intellectual foundation for professionalization, however, it did not effect a real philosophical or intellectual revolution in economics.

Brown, David Kelly. *The Rise of United States Undergraduate Education: A Sociology of College-Founding, System-Building, and Credentialism, 1800-1930.* Northwestern University, Ph.D., 1993, pp: 282.

Order No. AAC 9327156.

This is an historical investigation of the development of expansive higher education and extensive occupational credentialing in the U.S. Credentialism in the U.S. was the result of the early creation of an institutional base of hundreds of small colleges. Enrollment expansion, after about 1890, depended on college subordination of competitor institutions, such as the public high schools. Enrollment expansion also was fueled by changes in the labor market recruitment needs of specific public and private bureaucratic organizations which favored selections of college graduates with technical communications skills because they were perceived as being trustworthy recipients of delegated powers.

Duke, John Alexander. *The Image of Oxbridge and American Universities: English Residential Colleges and American Research Universities, 1894-1980.* Indiana University, Ph.D., 1992, pp: 255.

Order No. AAC 9231544.

Between 1894 and 1980, several American universities attempted to organize their undergraduate student bodies around systems of residential colleges modeled largely after the Universities of Oxford and Cambridge: Harvard, where the idea was discussed as early as 1894; Yale, beginning in 1925; the Claremont Colleges, which adopted its Oxford-style Group Plan in 1926; and the University of California at Santa Cruz. None of the projects ever lived up to proponents' expectations. First, the original impetus rested largely on popular perceptions of Oxford and Cambridge, while largely ignoring crucial features of English university life and society. Second, once in operation, the residential colleges systems conflicted with the departmental structure and the impetus to expand in size and scope.

Etter, Scott Charles. *From Atherton to Hetzel: A History of Intercollegiate Athletic Control at The Pennsylvania State College, 1887-1930.* The Pennsylvania State University, Ph.D., 1991, pp: 304.

Order No. AAC 9214152.

At Penn State, control passed in succession from undergraduate students, to the physical director, the college alumni, to Hugo Bezdek, and finally to the college administration. All the while, an uneven contest existed between the quest for intercollegiate success and the desire to maintain institutional integrity. Recurrent reform movements provided periodic shocks to the increasingly rationalized system of intercollegiate athletic organization. Ultimately, however, the active pursuit of success proved to be a far more important controller of intercollegiate athletics than the passive protection of institutional integrity.

Farnum, Richard Albert, Jr. *Prestige in the Ivy League: Meritocracy at Columbia, Harvard and Penn, 1870-1940.* University of Pennsylvania, Ph.D., 1990, pp: 381.

Order No. AAC 9026549.

This study attempts to understand the sources of prestige within the Ivy League, differences by a comparative analysis of the historical development of Harvard, Columbia and Penn from 1870 to 1940. The social composition of the student was the crucial factor in determining a college's subsequent status. Only where the collegiate ideal of "liberal culture" predominated was prestige sustained. Where the democratic utilitarian ideal of service to society prevailed, the college lost both its prestige and its autonomy. America's prestige colleges evolved functionally from "status-confirming" to "status-creating" and "class-creating" institutions, but only those like Harvard, which took the problem of status-creation seriously, retained their prestige.

Fox, Michael Sheldon. *The Higher Party Schools: Education, Politics and the Transformation of Intellectual Life in the Soviet Union, 1921-1929.* Yale University, Ph.D., 1993, pp: 444.

Order No. AAC 9400623.

Based on previously-restricted materials from the former Soviet state and party archives, this study analyzes the bifurcated New Economic Party (NEP) order in higher education, in which newly-created Communist institutions paralleled and rivaled conventional higher learning from the Academy of Sciences to the universities. The dissertation traces the evolution of the three most prominent centers of Marxist scholarship and Bolshevik intellectual life in the 1920s: Sverdlov Communist Univer-

sity, the Institute of Red Professors, and the Communist Academy. The new intelligentsia pioneered new patterns in all academic endeavors influenced by Soviet Marxism and shaped the direction of higher education and intellectual life in the country as a whole.

Gatens, Rosanna Marie. *Prelude to Gleichschaltung: The Collapse of Academic Freedom at the University of Heidelberg, 1919-1933*. University of Pittsburgh, Ph.D., 1992, pp: 267.

Order No. AAC 9233262.

During the Weimar era, the University of Heidelberg was characterized as a "bulwark of young democracy." Between 1919 and 1933 the Heidelberg faculty evolved a pattern of response to political controversy which gradually favored the preservation of collegiality over the principled defense of academic freedom. This pattern eventually destroyed both the moral and legal basis for protecting the faculty from the consequences of the Nazi personnel purges in April 1933, and resulted in the University's subsequent *Gleichschaltung*.

Grunfeld, Katherina Kroo. *Purpose and Ambiguity: The Feminine World of Hunter College, 1869-1945*. Columbia University Teachers College, Ed.D., 1991, pp: 269.

Order No. AAC 9210536.

Utilizing the institutional materials and student literature in the Hunter College Archives, this study explores the evolution of the Normal College of the City of New York into Hunter College and the development of its unusual student community during the seventy-five years that it was New York's distinctive college for women. At a time when prestigious institutions pursued policies of selective admissions based on social and cultural criteria, Hunter's strict adherence to a policy of meritocratic admission determined solely by competitive examination precluded control of the composition of its student body. The tension between academic excellence and social unease fostered an ambivalent atmosphere among students, faculty, and alumnae.

Hofstetter, Michael J. *The Romantic Idea of the University: England and Germany, 1770-1850.* Northwestern University, Ph.D., 1991, pp: 333.

Order No. AAC 9129001.

At the University of Jena in the 1790, Fichte and Schiller argued that universities must not merely produce civil servants, doctors, and ministers, but must work towards developing the minds of the young and improving the moral and cultural well-being of society. These beliefs were also present when Fichte and Humboldt worked to establish the University of Berlin in 1810. In England, Coleridge and others sought to keep the universities part of England's National Church, to preserve their religious character, and to ensure the survival of the tutorial and collegiate system. Consequently, while the romantic idea of the university contributed to the founding of a new type of university in Berlin, it had a conservative impact on English universities.

Hosford, Stacilee Ford. *Frederick Augustus Porter Barnard: Reconsidering a Life.* Columbia University Teachers College, Ed.D., 1991, pp: 196.

Order No. AAC 9228535.

This study of Frederick Augustus Porter Barnard (1809-1889), the tenth president of Columbia College (1864-1888), is a reconsideration of his life and his contribution to higher education. Barnard crafted a place for himself in public discourse and in the social and intellectual life of the South during the years from 1837 until 1862. As president of Columbia College, Barnard was a marginal administrator and a poor politician, yet he continued to promote change at the college, particularly in coeducation and professional opportunity for women.

Huk, Irene Pancner. *The Collective Way: Undergraduate Educational Philosophy and Policy at Eight Universities, 1850-1920.* The University of Chicago, Ph.D., 1993.

Not available from UMI.

This study defines the collegiate way as presidential concern for the religious and social education of students and as administrative policies on dormitories, chapel attendance and the regulation of student behavior outside the classroom. Using a modified Clark-Trow typology, student activities were assessed as complementary, oppositional, or neutral to the college and university ethos. The collegiate way declined around mid-century and was rehabilitated during the first decade of the 20th century. Universities examined include Harvard, Yale, Cornell, Johns Hopkins, Michigan, Wisconsin, Chicago, and Notre Dame.

Kerns, Kathryn M. *Antebellum Higher Education for Women in Western New York State (Genesee College, New York Central College, Alfred Academy and University, Ingham University, Elmira College).* University of Pennsylvania, Ph.D., 1993, pp: 372.

Order No. AAC 9321418.

This study looks at women and higher education at five schools in western New York state before the Civil War: three coeducational and two women's schools. This dissertation examines the role higher education played for these women, looking at their backgrounds, their student life, and their careers, and how all of these interacted with what the schools intended. Though the women's schools and coeducational schools come out of differing traditions, there are interesting differences within each category.

Landman, Ronald. *From Normal Schools to State Colleges: A Political, Social, and Economic History of Normal Schools in Massachusetts.* Boston College, D.Ed., 1992, pp: 166.

Order No. AAC 9217455.

This study follows the changes and growth of the normal schools as they evolved in five periods: The Beginnings of Public-Funded Teacher Preparation; Society's Effect on Public Support for Teacher-Training; The Lack of Resources for Necessary Enhancement; The Evolution to the State Colleges. It reports how politics, sociology, and economics affected the transformation of normal schools to state colleges, using the status of teachers as the standard to measure attitudes on the value of teacher-education.

Lowen, Rebecca Sue. *'Exploiting a Wonderful Opportunity': Stanford University, Industry and the Federal Government, 1937-1965.* Stanford University, Ph.D., 1990, pp: 293.

Order No. AAC 9017879.

This study points to the pivotal role of university administrators in forging research ties to industry and the federal government (chiefly, the military) to meet their own institutional goals of national prestige and financial support. While most Stanford faculty members accepted the new conditions, and some, notably the engineers, eagerly sought outside research support, a few did challenge and resist what they believed to be unwarranted pressure from university administrators to seek sponsored research contracts and to shape their departments to accord with sponsors' interests.

Mark, Steven Richard. *Ohio Colleges and Universities During the Gilded Age: Institutional Evolution, Elective Curriculum, Graduate Education, and Commercial Programs, 1865-1901.* Bowling Green State University, Ph.D., 1991, pp: 687.

Order No. AAC 9210465.

This study examines institutional evolution, the move to an elective curriculum, early attempts at advanced graduate education, and the availability of commercial programs. The Gilded Age witnessed the founding of 40 institutions, of which 22 survived. Elective choice ran the gamut between total freedom and simply a choice between French and German. Twelve schools offered the Ph.D. and Sc.D. during 1880-1901, but few doctorates were actually conferred. Commercial courses—in fact equivalent to business education today—were offered by at least 16 institutions, usually as a means of attracting additional tuition income.

Ormerod, Dana Evans. *Robert E. Lee: President of Washington College, 1865-1870.* Kent State University, Ph.D., 1993, pp: 475.

Order No. AAC 9320729.

Robert Lee (1807-1870) assisted Washington College to recover from the brink of extinction and to attract national attention. This study includes an academic year-by-year account of this presidency and the curricular reforms leading toward "practical" or "scientific" courses.

Shen, Xiao Hong. *Yale's China and China's Yale: Americanizing Higher Education in China, 1900-1927.* Yale University, Ph.D., 1993, pp: 373.

Order No. AAC 9414920.

From 1906 to 1927, Yale-in-China established a middle school, a medical college, a hospital, and a nursing school, in Chengsha, the capital of Hunan province. Together, the Americans and Chinese created a "high culture" which identified China's modern education with American influences. In this interactive but unequal relationship, individuals on both sides perceived each other and defined themselves across cultural boundaries. Protest movements reveal the ways in which Chinese students and faculty members acquiesced yet protested, integrated yet rejected, and learned from yet struggled against, the process of Americanization at Yale-in-China.

Siegel, Thomas Jay. *Governance and Curriculum at Harvard College in the 18th Century*. Harvard University, Ph.D., 1990, pp: 515.

Order No. AAC 9035554.

The expansion of 18th-century Harvard College is the story of the expansion of a colonial academic institution and the redefinition of its underlying philosophical principles. The first part, on governance, explains the development of Harvard's three-part governing system between 1707 and 1780. The second part deals with the expansion of the curriculum between 1684 and 1784. The final part examines the individual subjects taught during the 18th century, revealing the tension at Harvard between the new influences from abroad and the philosophical legacy of 17th century New England Puritanism.

Sugrue, Michael. *South Carolina College: The Education of an Antebellum Elite*. Columbia University, Ph.D., 1992, pp: 378.

Order No. DA9313693.

The education given to approximately 3,000 young men who attended South Carolina College, most of whom were the sons of South Carolina's planting elite, indoctrinated them with prosouthern political views. Proslavery extremism, states rights dogmatism, and Southern nationalism were articulated and successfully transmitted to young men who later became key figures in Southern cultural life. Alumni were among the most prominent politicians in the lower South.

Wing, Richard Lewis. *Ingham University, 1857-1892: An Exploration of the Life and Death of an Early Institution of Higher Education for Women*. State University of New York at Buffalo, Ph.D., 1990, pp: 459.

Order No. AAC 9033749.

Ingham University, dedicated to "advancing young ladies in all the branches of a thorough and accomplished education," was chartered by New York State in 1857, but closed its doors in 1892 in bankruptcy. This study considers the role of Ingham in 19th century women's higher education. Factors causing the university to fail include the lack of endowment, compounded by weak or inept management, loss of clientele to other institutions, and the apparent chicanery of at least one of the latter trustees.

ABOUT THE CONTRIBUTORS

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